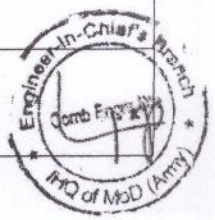
QUESTIONNAIRE : ANTI TANK MINE VIRAJ

Ser No	Specification Required	Response
Physical Characteristics of Mine.		
1.	What are the physical dimensions of the mine?	
2.	What is minimum weight of the mine inclusive of explosives?	
3.	What is the colour of the mine? Can the mines be manufactured in different colour variants for different terrain as obtained in area of operations?	
4.	What is the likely effect of moisture/ water on the mine should the mine remain submerged for a duration up to but not exceeding 30 days?	
5.	Can the mine be operational between minus 20°C to 55°C. What is the temperature range (minimum and maximum) and humidity which the mine is likely to withstand while deployed for ops and in storage.	
6.	What is the maximum number of times the mine and the fuze can be handled safely?	
7.	What is the hardware material being used for manufacturing of said mine body?	
8.	Is the mine fit for storage in temperature range from minus 20° C to plus 70°C?	
Laying / Arming & Disarming.		
9.	Whether the mine can be laid mechanically and /or remotely other than manual methods? Is there any capability development on similar lines being planned for a later stage? In case its possible to lay mine by mechanical means, which equipment is proposed for mechanical mine laying. Is the mine designed in a manner so as to enable it to be laid through remotely delivered mine systems-as and when such a capability is developed?	
10.	What is the mechanism that is being used to arm/ disarm/ locate the mine? What is the likely impact on the adjacent mines should one particular mine be disarmed or neutralised?	
11.	Is there any technology presently available in the world to enable the adversary to counter this mechanism and use it to his advantage?	
12.	What safety mechanism is being incorporated to prevent accidental activation of the mine? Any additional safety that has been incorporated during storage and transport ?	
13.	What effect will multiple arming/ disarming and target selection will have on the efficacy of the functioning of the mine?	
14.	Does the fuze have an arming delay of 60±10 minutes once it is physically armed? If not, what is the arming delay that can be achieved?	
Actuation Load.		
15.	Will the mine activate at a load less than 140 kgs. What is the minimum activation load tolerance that can be achieved?	



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16.	What is the envisaged effect of activate of the mine on the various parts of the tank?	
17.	What will be the size of the actuation pad? (i.e. surface area of pressure pad).	
Warhead.		
18.	Is it a single charge or double charge system (clearing and main charge)? If single charge system, what is the concept of employment and how is it likely to carry out the basic function of the main charge as well as the clearing charge?	
19.	What is the envisaged vertical standoff distance of the mine including the earth cover that will be required to test the armour penetration being achieved above?	
20	What explosive effect does the mine work on? (Shaped Charge or Explosively Formed Penetrator).	
21.	How much penetration will the mine achieve against a Rolled Humogenous Armour (RHA)?	
Fuse System		
22.	What is the type of fuse to be used in the mine? What are the safety features incorporated to prevent accidental activation of the fuse?	
23.	Is any self-neutralisation period being planned for the fuse? What are the settings for this self-neutralization period?	
24.	What is the maximum time in days in which the mine will be standby state after laying?	
25.	Does the mine have Single Action & Double Action fuze field settable incorporated?	
26.	Does the mine have TSIU (Tilt Sensing Initiation Unit)? If yes what is the tolerance in degree?	
27.	Can the mine actuate after SN period i.e. TSIU (Tilt Sensing Initiation Unit) is neutralized?	
28.	Does both TSIU and Mechatronic pressure sensor have the SN period? Explain it in detail?	
29.	**Shelf Life**. Is there a requirement of special storage condition for mine/ mine components? If so give the temp/ humidity range. What is the shelf life of mine and fuze? Can the fuze be easily replaced in the field or in the storage depots? Does any other part of the mine have to be replaced during shelf life of the mine? If yes, can same be done in storage depots?	
30.	What is the maximum shelf life of a fuze and mine?	
31.	Can the shelf life be extended? Vendor to elaborate shelf life extension methodology. QMS and Reliability model for extension of shelf life.	
32.	What is the shelf life of battery / mine power source?	
Other Aspects		
33.	What is the range of the speed of tank between which the above can be achieved?	
34.	What is the max speed of tank where in DA fuze can activate?	

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35.	What is the minimum standoff distance to prevent sympathetic detonation due to the blast from Anti-Personnel Blast Type Mines and Anti-Tank Mines? Specify the mine considered.	
36.	How many mines can be carried in a HDPE box?	
37.	How many mines can be loaded in a 'in-service' 5/7.5 Ton vehicle?	
38.	Does the mine Anti Disturbance Device (ADD) must be able to be rendered safe / neutralised manually?	
39.	The development agencies to provide supporting documents, if any, of the design parameters that are being provided for the equipment.	
40.	Impact of offensive EW on the electronic fuse? Also of RS emission on the electronic fuse?	
41.	Accessibility of the battery would be from top of the mine or bottom of the mine?	
42.	Height from which mine can be dropped without sustaining any damage?	
Training.		
43.	What is the type and duration of training required for initial handling of the equipment? What is the type and duration of refresher training for subsequent handling?	
44.	Details of training/ operating manuals to be provided.	
45.	What are the training requirements for Maintenance personnel to be able to carry out Component Level Repair?	
46.	Is your entity willing to offer a comprehensive package for training of maintenance personnel to undertake repair and maintenance of equipment along with tools and test jigs as required?	
47.	Requirement of training of operators on existing system without going in for simulators.	
48.	Any practice mine / simulator that can be provided for the mine. Details and cost of the same.	
49.	Cost of training aids / suggestions such as cut out models, CBT etc.	
Maintenance		
50.	Can the battery in TSIU be replaced in field conditions by a soldier?	
51.	The ability of the company to sustain the product through the lifecycle of the equipment (including spares and upgrades).	
52.	How will you ensure continuous supply of spares especially for components procured ex-import?	
53.	How will continuous supply of spares be ensured from sub-contractors?	
54.	What measures would be taken to mitigate the effects of extreme cold climate on the equipment.	
55.	Are you willing to provide Engineering Support Plan (ESP) comprising of Manufacturer's Recommended List of Spares (MRLS), Special Maintenance Tools (SMTs), Special Test Equipment (STE), Test jigs and fixtures and Technical Literature.	
56.	If you are willing to provide ESP then provide the recommended requirement of MRLS, SMTs, STE, Test jigs and fixtures and Technical Literature.	
57.	Specify warranty and Annual maintenance being offered.	

Engineer-In-Chief's Branch
IHQ of MoD (Army)

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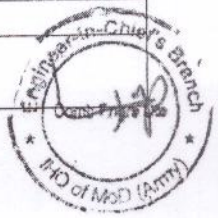
58.	**Product Support**. What is the period for which you will commit product support for sustenance of the system in terms of supply of spares/ Calibration etc?	
59.	What kind of 'Product Support' will be ensured including warranty & AMC proposed? What will be 'Time Period'?	
60.	**Warning Arrangements.** What warning arrangements are incorporated to ensure safe operation and maintenance of mine?	
61.	**Standardisation.** Please confirm that the assemblies, sub-assemblies, components, parts and materials used in the equipment conform to relevant MILSTD(S) and in the absence of MILSTD (S), other internationality accepted standards.	
Status of Development / Production.		
62.	What is the present status of development of the mine?	
63.	Please specify timelines for fielding the product for evaluation from date of issue of RFP.	
64.	What is the infrastructure available to produce mines in India?	
65.	What is / will be the annual production capability of your firm?	
66.	Please intimate number of prototypes that can be provided for trials.	
67.	How much time is required for development & fielding of prototype post issue of PSO (Project Sanction Order)?	
68.	Does PA has NABL accredited test facilities for complete stores?	
Assistance Required During Prototype Development.		
69.	Any requirement of access to firing range during prototype development phase. If yes, specify the duration of access required per day and total no of days.	
70.	Any requirement of military equipment including mines during prototype development phase. If yes, specify the equipment and quantity required and period of requirement (in days).	
Indicative Cost.		
71.	Cost of the prototype development of one mine without taxes.	
72.	Total cost of approx 1,00,000 Numbers of equipment with the specified warranty without taxes.	
73.	Recommendations for AMC/CMC or to be maintained by the Army with adequate training.	
74.	In case of AMC/ CMC, yearly cost of maintenance in % of Total Cost without taxes.	
75.	Taxes in %	
76.	Quantity of prototype recommended for user trials as per your judicious assessment.	
77.	At this stage, exact Numbers of samples required for trials is difficult to arrive at, since it will be based on the vendor's technology, composition /methodology. However as an indicative figure from vendor side, cost of providing 50 Numbers, 100 Numbers & 150 Numbers prototype for trials to be provided for generic understating.	
78.	Likely life cycle cost of the system.	
79.	What is the minimum quantity which OEM would be willing to offer keeping in mind the financial viability of the project?	



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Indigenous Content (IC).		
80.	Likely achievable indigenous content at prototype as well as at production stage in %.	
81.	Details of Indigenous Content of important sub-systems and enabling technologies.	
82.	Critical/ core technologies identified which are not likely to be available in India, to be sourced ex-import (in cost percentage terms) or not being indigenises.	
83.	Critical/ core technologies being indigenised.	
84.	Sub-systems/ equipment manufactured by the company and details of outsourced equipment along with details of the manufacturer.	
85.	Details of Intellectual Property Rights (IPR).	
86.	Percentage of Use of military grade Indigenous components.	
Time for Manufacture.		
87.	Likely time for development of the prototype (in weeks).	
88.	Manufacturing of the product (per year capability).	
R&D.		
89.	Number of employees working in R&D of systems related to the product (both hardware and Explosive components).	
90.	Whether company has produced any product for government agency? If yes, details of product with quantity, cost & year of supply be provided.	
91.	Any similar project or sub component which is presently being undertaken by the company R&D / D&D.	
92.	Scope of project & current status of development /trial of the project.	
Company Details.		
93.	Category of the company, whether Large/ Medium/ Small or Start Up/ DPSU/ CPSU. Provide Govt certification for MSME and Start Up	
94.	Years of existence (Established in year____) and annual turnover.	
95.	Latest credit rating of company (indicate year).	
96.	Annual profit in last three financial years.	
97.	Experience of the company in related field.	
98.	Average annual turnover of past three years.	
99.	Net worth as on 31 Mar of previous Financial Year.	
100.	Is ownership Indian or Foreign or Joint Venture?	
101.	The shareholding pattern of the company. (Indian and Foreign in percentage)	
102.	Whether the company is OEM, manufacturing agency or system integrator.	
103.	Whether similar equipment has been supplied to any other government agency (Type of equipment, quantity, cost & year of supply).	
104.	Whether company has patents/ IPR/ filed any patents (pending approval) related to Anti Tank Mine Viraj.	
105.	Whether company has patents/ IPR/filed any patents (pending approval) of any critical components/ sub-systems. Give details.	

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106.	Whether the company has any tie-ups/ Joint Ventures with any foreign firm for producing similar equipment.	
Infrastructure.		
107.	Does the company have adequate infrastructure to develop, integrate and manufacture? If not, what would be the procedure and timelines to establish the same?	
108.	Does the company have adequate infrastructure for carrying out trials and testing of equipment?	
109.	Availability of explosive lab testing facility for checking the efficacy?	
Licences.		
110.	Any existing technology partnership/ applied for partnership with manufacturing companies?	
111.	Details of defence licence for manufacturing companies to be provided.	
Explosive Licences.		
112.	Details of explosive licence for manufacturing companies to be provided.	
113.	Details of defence licence for manufacturing companies to be provided.	
114.	Any existing partnership/ applied for partnership with Explosives manufacturing companies?	
115.	Required/ held for hardware/ software.	
116.	Licenses required for explosive licenses or arrangement thereabout.	
Quality Certification.		
117.	Details regarding quality certification like ISO 9000 etc, if so, details of date of certification with validity and certification agency.	
118.	Measures and capability to meet environmental specification as per laid down norms.	
119.	Details regarding quality certification like ISO 9000 and ISO 17025 etc., if so details of date of certification with validity and certification agency be provided.	

5. The contact details on which responses are to be forwarded are as under :-

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Office Address	: Room No -80, Comb Engrs-6/ CE Dte E-in-C's Branch Kashmir House, Rajaji Marg New Delhi-110011
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