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### INVITATION FOR EXPRESSION OF INTEREST (EoI) FOR PROCUREMENT OF ARMoured FIGHTING VEHICLES (AFV) PROTECTION AND COUNTER MEASURE SYSTEM FOR TANK T-90 S/SK

**References** : DAP 2020.

**Appendices** :

**Appendix A:** Extracts of Preliminary Staff Qualitative Requirements (PSQR) for AFV Protection & Counter Measure System for Tank T-90 S/SK

**Appendix B:** Commercial Evaluation Criteria.

**Appendix C :** Technical Evaluation Criteria.

**Appendix D :** Confidentiality Agreement.

**Appendix E :** Correctness Certificate.

**Appendix F :** EoI Compliance Certificate.

**Appendix G :** Evaluation Criteria of Desirable/Enhanced Performance Parameters.

**Appendix H :** Information Performa.

**Annexure (s):** Technical Evaluation Compliance Matrix (**Annexure 'I' to Appendix 'C'**)

#### **Introduction**

1. Contemporary combat vehicles have on board protective cum warning systems to warn the crews of impending attacks and create physical interference between the platform and hostile threat thereby enhancing its survivability. The AFV Protection & Counter Measure System for tank T-90 S/SK is a combination of hard skill and soft skill measures to detect and then degrade/ defeat incoming hostile projectiles to enhance its survivability in the battle field.

#### **Objective**

2. The objective of this invitation of Expression of Interest (EoI) is to **seek responses from eligible Indian Vendors for development of prototype and further procurement** of AFV Protection & Counter Measure System for tank T-90 S/SK in service with the Indian Army.

#### **Layout**

3. The EoI has been covered under the following parts:-

- (a) Part I : General Information.
- (b) Part II : Scope of the Project.
- (c) Part III : Evaluation Criteria.
- (d) Part IV : Procedure for Submission of Response to the EoI.
- (e) Part V : Miscellaneous Aspects.

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4. The nodal officer for this project for all queries/clarifications/coordination will be **Secretary, Project Facilitation Team (PFT), Project 'AFV Protection & Counter Measure System for tank T-90 S/SK'**. Address and contact details of the nodal officer are given at Paragraph 32 of the EoI.

**PART I: GENERAL INFORMATION**

5. **Categorisation**. The project is categorised as under:-

(a) **Prototype Development Phase**. 'Make-II' in accordance with **Chapter III of Defence Acquisition Procedure 2020**.

(b) **Procurement Phase**. 'Buy (Indian - IDDM)' with indigenous design and development and a minimum of 50% IC in accordance with **Para 21 of Chapter I of Defence Acquisition Procedure 2020**.

6. **Quantities**. The quantities sought for the project are:-

(a) **Prototype Development Phase**. Two prototypes of AFV Protection & Counter Measure System for tank T-90 S/SK to be developed by the shortlisted DA(s).

(b) **Procurement Phase**. Procurement of quantity 818 of AFV Protection & Counter Measure System for tank T-90 S/SK, including ESP and installation on tanks.

7. **Appreciated Timelines & Milestones**. Appreciated timelines & milestones for the project are given as under:-

<b><u>Ser No</u></b>	<b><u>Milestones/Activity</u></b>	<b><u>Time in weeks from collegiate discussions (To)</u></b>
(a)	Categorisation and Accord of AoN (Date of issuing of minutes of DAC)	T <sub>0</sub>
(b)	Issue of EoI	8
(c)	EoI Response Submission	8
(d)	EoI Response Evaluation	6
(e)	Issue of Project Sanction Order	2
(f)	Design & Development of Prototype	134 (As per AoN)
(g)	Conversion of PSQR to SQRs	4
(h)	Solicitation of Commercial Offer	4
	<b>Total</b>	<b>166 weeks</b>

**PART II : SCOPE OF THE PROJECT**

**Proposal of Armoured Fighting Vehicles Protection And Counter Measure System For Tank T-90 S/SK**

8. T-90 S/SK tanks are the main stay of the mechanised forces and are likely to remain in service beyond 2050. Hence, it is imperative that, the tanks are periodically upgraded to cater for the futuristic war fighting capabilities as also facilitate obsolescence management. There is a requirement to provide enhanced protection and survivability to these assets in addition to the intrinsic protection of the tanks by way of soft and hard kill measures.

9. **Preliminary Service Qualitative Requirements (PSQR) of the Proposed Armoured Fighting Vehicles Protection And Counter Measure System for tank T-90 S/SK**. Extract of PSQR of the AFV Protection And Counter Measure System For Tank T-90 S/SK is attached as **Appendix 'A'**.

**Timelines and Critical Activities**

10. Stages of the development and procurement process will be as per **Chapter III of Defence Acquisition Procedure 2020**.

11. Major critical activities in the procurement process areas are given below:-

<b><u>Serial No</u></b>	<b><u>Activity</u></b>	<b><u>Remarks</u></b>
(a)	Pre Expression of Interest (Eol) Response Meeting	3 Weeks (tentative) after the issue of Eol, to clarify the issues/ queries raised by participating firms to facilitate submission of Eol response.
(b)	Evaluation of Eol Responses	By Project Facilitation Team (PFT).
(c)	Issue of Project Sanction Order for Development of Prototype	To shortlist Development Agencies (DAs) meeting evaluation criteria.
(d)	User Trial Readiness Review	(a) To confirm completion of design & development of prototypes as per PSQR, prior to commencement of User Trials. (b) More than one review may be conducted, on required basis. Dates will be promulgated by the PFT, as per progress of the project.
(e)	Solicitation of Commercial Offers	Commercial RFP for 'Buy (Indian-IDDMM)' phase will be issued to all Development Agencies (DAs) for submission of their commercial offer, prior to commencement of user trials.
(f)	Conduct of User Trials and GS Evaluation	To validate the performance of the AFV Protection & Countermeasure System for tank T-90 S/SK under trial against the specifications approved after the development of prototype.

**Development of Prototype and Trials**

12. The composition and design of the **AFV Protection & Counter Measure System for tank T-90 S/SK** to meet the PSQR will be decided by respective DAs in conformity with Para 11 above. Any clarification related to functional or operational aspects of the equipment under development, as sought by the DAs, will be provided by the Project Facilitation Team (PFT).

13. After the prototype has been developed as per PSQRs given at **Appendix 'A'**, the PFT will carry out user trials readiness review of the prototype(s) and freezing of Technical Specifications, before conduct of user trials. Evaluation of **AFV Protection & Counter Measure System for tank T-90 S/SK** will be carried out during the user trials, to validate

the performance against the final technical specifications. **SHQ will formulate the 'Trial Directive' which will address all issues for validating the 'Essential Parameters'**. Necessary technical literature pertaining to the design & material will be provided by the DAs for the user trial readiness review and conduct of user trials on the prototype.

14. Access to in-service **Tank T-90**, as feasible, will be provided to the selected DAs, for internal assessment of parameters given in the PSQRs on successful completion of UTRR.

### **Solicitation of Commercial Offers**

15. A commercial Request for Proposal (RFP) for 'Buy (Indian-IDDM)' phase would be issued to DA(s) prior to commencement of User trials for soliciting their commercial offers and additional technical information/ documentation, as may be necessary.

### **Deliverables**

16. The deliverables are as under: -

(a) **Prototype Development Phase.** Two Prototype AFV Protection & Counter Measure System for tank T-90 S/SK, to be developed by each nominated DA.

(b) **Procurement Phase.** Procurement of quantity **818 AFV Protection & Counter Measure System** for tank T-90 S/SK, including ESP and installation on tanks.

(c) ESP to incl MRLS, SMT/STEs, Technical Literature and Training.

(d) **Packaging**

(i) Packaging box should be sufficiently strong and of seasoned wood to ensure safety during transportation.

(ii) Suitable markings on boxes.

(iii) The boxes should be provided with adequate facility for carriage.

### **List of Trials and Facilities to be Provided**

17. The list of trials and facilities to be provided is as under: -

(a) **Trials.** The trials will be conducted in three Phases: -

(i) **Phase – I : User Trial Readiness Review (UTRR).** Development of prototype and to bring the AFV Protection & Countermeasure System for Tank T-90 S/SK for user trial level and ensure that, the equipment meets the desired parameters and safety standards. The prototype will be evaluated on UTRR prepared by PFT.

(ii) **Phase – II : User and Tech Trials (Summer and Winter Trials)**. To evaluate indigenously developed AFV Protection And Counter Measure System for tank T-90 S/SK and ascertain its suitability for induction in the Army.

(b) **Safety Certificate**. Manufacturer will give a safety certificate before the commencement of trials stating the following: -

“Armoured Fighting Vehicles Protection And Counter Measure System for tank T-90 S/SK being offered to the Army for trials has been validated during internal validation trials by manufacturer for safety. All the safety parameters are well within the design parameters, and this AFV Protection & Counter Measure for tank T-90 S/SK is safe for trials by the crew”.

(c) **Facilities Provided**.

(i) **Trial Tanks**. 01 x tank T-90 in physically fit condition for form and fitment evaluation and user trials to selected DAs on successfully qualifying UTRR as well as prototype trial eval. The facilities at HVF, Avadi to meet functional and safety requirements will also be provided as per **GoI, Ministry of Defence vide letter No 18(2)/15/GTF/DP(PIg-MS) dated 28 August 2019**. A fitness certificate will be submitted by the DAs on maintainability of tanks.

(ii) **Trial Crew**. Crew on the trial tanks will be provided. Necessary training on the operation of AFV Protection & Counter Measure for tank T-90 S/SK for the crew will be conducted by the DAs. A crew training certificate will be submitted by the DAs on the training standard of the crew.

(iii) **Firing Range**. The firing range for the subject trials will be coordinated and made available as per trial schedule.

(iv) **Weapon and Ammunition**. Weapon and ammunition will be coordinated and made available as per trial schedule.

(v) In case, any damage occurs to the **equipment /property / personnels resulting from the testing of the job of private entity, the private entity is liable to bear the expenses** of repair / replacement of the facility and all necessary insurance coverage for the job shall be the responsibility of the private entity.

(vi) **Repair, Recovery and Maintenance Facility**. Necessary repair cover will be provided.

### **Multiple Technological Solutions**

18. Multiple technological solutions for the AFV Protection & Countermeasure System for tank T-90 S/SK **will not be acceptable**.

**Intellectual Property Rights (IPRs)**

19. Policy on IPR is, as given at Paragraph 59 of **Chapter III of Defence Acquisition Procedure-2020**. The vendor will submit document to qualify that the “**Design of the equipment is the property of the vendor**”, as per policy in vogue.

**Declaration on Corporate Insolvency Resolution Process (CIRP Regulations)**

20. Any corporate insolvency resolution process underway (other than COVID-19 period) or not, needs to be indicated as per IBBI (Insolvency and Bankruptcy Board of India) insolvency Resolution Process for Corporate Regulation, 2016 with amendment dated 29 Mar 2020. The overseas collaborators having JVs with Indian partner also to indicate the above declaration applicable to their country.

**Vendor Participation**

21. Indian vendors as detailed in Para 6 (b) to **Chapter III of Defence Acquisition Procedure 2020** are eligible for participation for Capital Acquisition Cases being progressed under Make-II sub category of “Make” project.

**PART III : EVALUATION CRITERIA**

**Commercial Evaluation Criteria**

22. The Indian entity meeting the criteria as given at Para 6 (b) to **Chapter III of Defence Acquisition Procedure 2020** may respond to EoI. The respondent will be required to furnish their response to the Commercial Evaluation Criteria, as per **Appendix ‘B’**.

**Technical Evaluation Criteria**

23. The respondents to this EoI are required to furnish information about their Technical Capability as per **Appendix ‘C’** and **Annexure I to Appendix ‘C’**. Compliance/ information’ is also required to be submitted as per the proposed solution offered by the DA against PSQR of the AFV Protection and Counter Measure System. The Evaluation criteria for Desirable/Enhanced Performance Parameters at the RFP stage will be as per **Appendix ‘G’**.

24. **Indigenous Content**. Post successful development under Make-II would result in acquisition from successful DA/DAs, through ‘Buy (Indian – IDDM)’ cat with indigenous design & development, and a minimum of 50 % IC in accordance with Para 21 of **Chapter I of Defence Acquisition Procedure 2020**.

25. **Foreign Collaboration**. If the DA is collaborating/ plans to collaborate with a foreign technology provider, the nature of such collaboration and the technology areas being transferred must be stated in the response (please refer Paragraph 5 of **Appendix ‘H’**).

26. **Additional Information**. Additional information required to be furnished as part of the EoI response is also given at **Appendix ‘H’**.

**PART IV : PROCEDURE FOR SUBMISSION OF RESPONSE TO THE EoI**

27. The response to the EoI shall be submitted **only on the printed copy of Appendices 'B', to 'F'** of EOI as uploaded on MoD website.

28. **Guidelines for Submitting EoI Responses.**

(a) The responses should be submitted strictly as per the formats given in respective Appendices. Should a vendor need to mention any other information, a separate annexure may be added.

(b) All responses and appendices should be submitted in a single file/ folder. supporting documents/ additional references should be submitted in a separate folder, with proper references mentioned against each parameter/ sub parameter, in respective appendices.

(c) Any supporting document/ evidence without any reference to specific parameter of criteria will not form part of the assessment.

29. **Rejection Criteria for the Responses.** The following may lead to rejection of the EoI response:-

(a) Failure to meet Commercial Evaluation Criteria given at **Appendix 'B'**.

(b) Failure to meet/ comply with the Technical Evaluation Criteria specifications given at **Appendix 'C' and Annexure I of Appendix 'C'**.

(c) Failure to submit certificates as mentioned at **Appendix 'D' to 'F' of the EoI.**

(d) Failure to offer compliance to any of the terms and conditions given in the EoI.

(e) Any other parameter of the response considered inadequate by the MoD, Government of India.

30. The EoI respondent shall submit two (02) copies of response to the EoI, clearly marking one copy as '**Original Copy**' and second as '**Duplicate Copy**'. In the event of any discrepancy between them, the original copy shall govern/ prevail. Each page of the response will bear the signatures of the authorised signatory of the company. The DA shall also submit a **soft copy** of the response to this EoI in a **CD/ DVD in MS Word**.

31. The envelopes shall be addressed as under:-

**Secretary, Project Facilitation Team**

**'Armoured Fighting Vehicles Protection & Counter Measure System for tank T-90 S/SK**

General Staff Branch

Directorate General of Armoured Corps

Integrated HQ of MoD (Army)

Room Number 501

'A' Wing, Sena Bhawan

DHQ PO, New Delhi-110011

Tele : 230-11655, **Email : dcat.modac90@gov.in**

32. The response to this Eol must be submitted by **1500 hours on 06 June 2021** at the address mentioned above.

33. The Company will be required to sign and honour the 'Confidentiality Agreement' with MoD, Govt of India. The 'Confidentiality Agreement' will be furnished by each Eol respondent at the time of submission of Eol responses, as per format given at **Appendix 'D'**.

**PART V : MISCELLANEOUS ISSUES**

34. **Pre Eol Response Meeting.** Companies may submit written queries/ clarifications/ amplifications on specific issues within 10 days of the issue of Eol. A pre-response meeting will be held within three weeks (tentative) after the issue of Eol to clarify the issues / queries raised by the participating firms to facilitate submission of response. Date of pre-response meeting will be promulgated by the PFT.

35. Guidelines for penalties in business dealings with entities as promulgated by the Government of India, from time to time, will be applicable on procurement process and bidders.

36. The Pre-contract Integrity Pact (PCIP), listed as detailed in Paragraph 22 of Chapter III of DAP-2020, shall apply mutatis mutandis, to 'Buy (Indian-IDD) phase of 'Make' project.

37. Respondents would be subject to disqualification if they make false, incorrect, or misleading claims in their response to this Eol. A 'Correctness Certificate' as per the format at **Appendix 'E'** will be furnished as part of the response.

38. Please acknowledge the receipt of this invitation for Eol.

File No : A/35854/Make(APS)/GS/AC-2/2021

Dated : 09 Apr 2021



(Nirbhay Gautam)

Colonel

Member Secretary, Project

Facilitation Team Project 'AFV Protection  
& Counter Measure System for tank

T-90 S/SK'

**Enclosures:** Appendices A to H

**Distribution List**

For Vendors  
Office Copy



**PRELIMINARY STAFF QUALITATIVE REQUIREMENT**  
**(EXTRACT OF RELEVANT INFORMATION)**

**ESSENTIAL PARAMETERS**

**Operational Parameters**

1. The system should have a combination of the under mentioned technologies.
  - (a) **Soft kill.**
    - (i) Should provide an audio visual warning on being lased or engaged by a hostile platform.
    - (ii) Use decoy smoke for anti lasing and camouflage against acquisition and detection of own platform.
    - (iii) Be able to degrade/defeat in-coming laser/ IR/Radar guided missiles by means of electro optical signals and or IR and or jamming.
  - (b) **Hard Kill.**
    - (i) Use sensors to detect incoming projectiles.
    - (ii) Use countermeasures to destroy/degrade incoming projectiles.
2. The essential operational characteristics of the AFV Protection & Countermeasure System are as under:-
  - (a) The system should be modular. The existing fitment items in the crew compartment should not be removed, however if relocated they should not compromise the operation of relocated fitment items of the tank. The system should not change the overall silhouette of the tank when viewed from the front and broad side.
  - (b) Should be light in weight and not adversely affect the agility /mobility of the vehicle, overall weight should not exceed 1000 kg.
  - (c) Should be installed and integrated in the T-90 S/SK tanks without interfering with the existing tank systems or functioning of the crew.
    - (i) Not obstruct vision through vision devices.
    - (ii) Not interfere with loading of rotary conveyer.
    - (iii) Not hinder 360 degree movement of the gun in manual or in stabilised mode.
  - (d) The system should deflect or destroy hostile attacks to protect against threats from guided missiles, RPG/RL and projectiles fired up to a velocity of 1000 m/sec.

(e) Fitting of any component of the system, should not be more than the height of the existing Anti Aircraft Machine Gun bracket.

(f) **Operating Temperature**

(i) Maximum : 40° C to 45° C

(ii) Minimum : 15° C to – 5° C

3. Should function when static or on the move and should be capable of **all weather day and night operations.**

4. Should be capable of detecting more than one direction of attack in case of a near simultaneous hostile threat (**minimum 0.5 second gap**) and neutralise **up to two threats.**

5. Should have high safety against accidental activation by false projectiles such as small arms fire, artillery, splinters etc. The **danger zone** for dismounted troops operating in the vicinity **should not exceed 50 m radius of the tank.**

**Technical Parameters**

6. Components fitted outside must be protected against splinters & SA firing and have **STANAG 4569 level 3 protection.**

7. The percentage of protection against each type of ammunition must be at least as under:-

(a) ATGM – 90 % or more

(b) HEAT round from 125 mm tank gun -70 %

(c) RPG/RL- 90 % or more

8. The system should have provision for future upgrades to **degrade KE projectiles.**

9. Should provide a **protective arc** in **azimuth of 360 degree** and **elevation** at minimum of **minus 6 degree to plus 90 degree.**

10. Should be **resistant to jamming.**

11. After neutralising the threat, the **residual penetration** due to splinters/ debris on the tanks surface **should not exceed 30 mm on a 90 degree** witness plate.

12. Normal **power consumption** of the system (excluding peaks) **should not exceed 1.5 KW** and the operating voltage of the system should be compatible with the available power source.

13. **Radiation waves** from the system should be safe for humans as per laid down **international safety standards for human.**

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14. Should be able to **function continuously** for **at least eight hours** operations.
15. The Sys should have an **open architecture** which will enable **integration with additional sensors and countermeasure system**.
16. Should be able to withstand **climate and durability test** as per **JSS 55555**.
17. System **should not affect sealing** of the combat vehicle for deep fording and NBC protection. The subsystem fitted externally should be water proof for fording. **Cutting of armour is not permitted and drilling if resorted to, should not be in the frontal 60° arc of the tank**.
18. System should be **MIL – STD - 1275 E**.
19. **EMI/ EMC**. The system should be capable of meeting EMI/EMC test at component level **under MIL Std 461E** and platform level test under **MIL Std 464C** or later standards

### Maintainability and Ergonomics Parameters

20. **Reliability**. MTBF should be minimum 1000 hours and MTTR should not be more than 60 minutes.
21. **Equipment Life**. The equipment should have a shelf life greater than 10 years and service life in excess of 3000 hours.
22. **Maintainability**. Assemblies /components of the system should be easily maintainable with Built in test equipment (BITE) facility to isolate faulty modules /PCBs. The system should also have a built in calibration mechanism.

### DESIRABLE PARAMETERS

23. Should be able to detect and defeat KE projectiles fired from a tank gun with muzzle velocity more than 1000 m/s.

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**Appendix B**

(Refer Para 22 of Eol)

**COMMERCIAL EVALUATION CRITERIA**

1. **Name of the Vendor :** \_\_\_\_\_
2. **Evaluation Criteria.**

<b><u>S</u> <u>No</u></b>	<b><u>Criteria</u></b>	<b><u>Vendor Submission</u></b>	<b><u>Reference</u></b> (Reference against vendor / response must be flagged and mentioned in this column)
(a)	Nature of the Company [refer Para 6 (b) of Chapter III of DAP-2020].	Indian / Joint Venture	
(b)	Ownership Status as per Para 20 (a) & (b) of Chapter I of DAP-2020.	Compliant / Non compliant	
(c)	Category of Industry	Large / Medium / Small / Micro / OFB / Start Up	
(d)	Registered with industrial license for defence production	Yes / No	
(e)	Minimum average turnover for <b>last three financial years from date of issue of Eol(5% of AoN Cost)</b>	More than 265.4 Cr / less than 265.4 Cr	
(f)	Net worth of previous financial year ending 31 Mar 2020.	Positive / Negative	

Station :

Signature

Company Seal

Date :

**Note:-**

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not be assessed.

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**TECHNICAL EVALUATION COMPLIANCE MATRIX**

<b><u>S No</u></b>	<b><u>PSQR Requirements</u></b>	<b><u>Vendor Claim Value</u></b>	<b><u>Remarks</u></b>
<b><u>Operational Parameters</u></b>			
1	<b><u>Soft kill.</u></b>  (a) Should provide an audio visual warning on being lased or engaged by a hostile platform.  (b) Use decoy smoke for anti lasing and camouflage against acquisition and detection of own platform.  (c) Be able to degrade/defeat in-coming laser/ IR/Radar guided missiles by means of electro optical signals and or IR and or jamming.	Compliant / Non Compliant  Compliant / Non Compliant  Compliant / Non Compliant	
2	<b><u>Hard Kill.</u></b>  (a) Use sensors to detect incoming projectiles.  (b) Use countermeasures to destroy/degrade incoming projectiles.	Compliant / Non Compliant  Compliant / Non Compliant	
3.	The system should be modular. The existing fitment items in the crew compartment should not be removed, however if relocated they should not compromise the operation of relocated fitment items of the tank. The system should not change the overall silhouette of the tank when viewed from the front and broad side.	Compliant / Non Compliant	
4.	Should be light in weight and not adversely affect the agility /mobility of the vehicle, overall weight should not exceed 1000 kg.	Compliant / Non Compliant	

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<b><u>S No</u></b>	<b><u>PSQR Requirements</u></b>	<b><u>Vendor Claim Value</u></b>	<b><u>Remarks</u></b>
5.	Should be installed and integrated in the T-90 S/SK tanks without interfering with the existing tank systems or functioning of the crew.  (a) Not obstruct vision through vision devices.  (b) Not interfere with loading of rotary conveyer.  (c) Not hinder 360 degree movement of the gun in manual or in stabilised mode.	Compliant / Non Compliant  Compliant / Non Compliant  Compliant / Non Compliant	
6.	The system should deflect or destroy hostile attacks to protect against threats from guided missiles, RPG/RL and projectiles fired up to a velocity of 1000 m/sec.	Compliant / Non Compliant	
7.	Fitting of any component of the system, should not be more than the height of the existing Anti Aircraft Machine Gun bracket.	Compliant / Non Compliant	
8.	<b><u>Operating Temperature</u></b> (a) Maximum : 40° C to 45° C (b) Minimum : 15° C to – 5° C	Compliant / Non Compliant  Compliant / Non Compliant	
9.	Should function when static or on the move and should be capable of <b>all weather day and night operations.</b>	Compliant / Non Compliant	
10.	Should be capable of detecting more than one direction of attack in case of a near simultaneous hostile threat ( <b>minimum 0.5 second gap</b> ) and neutralise <b>up to two threats.</b>	Compliant / Non Compliant	
11.	Should have high safety against accidental activation by false projectiles such as small arms fire, artillery, splinters etc. The <b>danger zone</b> for dismounted troops operating in the vicinity <b>should not exceed 50 m radius of the tank.</b>	Compliant / Non Compliant	
<b><u>TECHNICAL PARAMETERS</u></b>			
12.	Components fitted outside must be protected against splinters & SA firing and have <b>STANAG 4569 level 3 protection.</b>	Compliant / Non Compliant	

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<b><u>S No</u></b>	<b><u>PSQR Requirements</u></b>	<b><u>Vendor Claim Value</u></b>	<b><u>Remarks</u></b>
13.	The percentage of protection against each type of ammunition must be at least as under:- (a) ATGM – 90 % or more (b) HEAT round from 125 mm tank gun -70 % (c) RPG/RL- 90 % or more	Compliant / Non Compliant Compliant / Non Compliant Compliant / Non Compliant	
14.	The system should have provision for future upgrades to <b>degrade KE projectiles.</b>	Compliant / Non Compliant	
15.	Should provide a <b>protective arc in azimuth of 360 degree</b> and <b>elevation</b> at minimum of <b>minus 6 degree to plus 90 degree.</b>	Compliant / Non Compliant	
16.	Should be <b>resistant to jamming.</b>	Compliant / Non Compliant	
17.	After neutralising the threat, the <b>residual penetration</b> due to splinters/ debris on the tanks surface <b>should not exceed 30 mm on a 90 degree</b> witness plate.	Compliant / Non Compliant	
18.	Normal <b>power consumption</b> of the system (excluding peaks) <b>should not exceed 1.5 KW</b> and the operating voltage of the system should be compatible with the available power source.	Compliant / Non Compliant	
19.	<b>Radiation waves</b> from the system should be safe for humans as per laid down <b>international safety standards for human.</b>	Compliant / Non Compliant	
20.	Should be able to <b>function continuously</b> for <b>at least eight hours</b> operations.	Compliant / Non Compliant	
21.	The Sys should have an <b>open architecture</b> which will enable <b>integration with additional sensors and countermeasure system.</b>	Compliant / Non Compliant	
22.	Should be able to withstand <b>climate and durability test</b> as per <b>JSS 55555.</b>	Compliant / Non Compliant	
23.	System <b>should not affect sealing</b> of the combat vehicle for deep fording and NBC protection. The subsystem fitted externally should be water proof for fording. <b>Cutting of armour is not permitted and drilling if resorted to, should not be in the frontal 60<sup>0</sup> arc of the tank.</b>	Compliant / Non Compliant	
24.	System should be <b>MIL – STD - 1275 E.</b>	Compliant / Non Compliant	

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S No	PSQR Requirements	Vendor Claim Value	Remarks
25.	<b>EMI/ EMC.</b> The system should be capable of meeting EMI/EMC test at component level <b>under MIL Std 461E</b> and platform level test under <b>MIL Std 464C</b> or later standards.	Compliant / Non Compliant	
<b><u>MAINTAINABILITY AND ERGONOMICS PARAMETERS</u></b>			
26.	(a) Maximum - 40° C to 45° C (b) Minimum - 15° C to – 5° C	Compliant / Non Compliant Compliant / Non Compliant	
27.	System should be MIL – STD - 1275 E.	Compliant / Non Compliant	
28.	<b>Reliability.</b> MTBF should be minimum 1000 hours and MTTR should not be more than 60 minutes.	Compliant / Non Compliant	
29.	<b>Equipment Life.</b> The equipment should have a shelf life greater than 10 years and service life in excess of 3000 hours.	Compliant / Non Compliant	
30.	<b>Maintainability.</b> Assemblies /components of the system should be easily maintainable with Built in test equipment (BITE) facility to isolate faulty modules /PCBs. The system should also have a built in calibration mechanism.	Compliant / Non Compliant	
<b><u>DESIRABLE PARAMETERS</u></b>			
31.	Should be able to detect and defeat KE projectiles fired from a tank gun with muzzle velocity more than 1000 m/s.	Compliant / Non Compliant	

Station :

Signature

Company Seal

Date :

**Note:-**

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not be assessed.

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**TECHNICAL EVALUATION CRITERIA**

<b><u>Ser No</u></b>	<b><u>Criteria</u></b>	<b><u>Vendor Response</u></b>	<b><u>Remarks</u></b>
1.	Indigenous content is minimum 50% as per DAP 2020.	Yes/No	
2.	Indigenous design as per provisions of DAP 2020.	Yes/No	
3.	Existing manufacture related infrastructure/R &D/Quality Control Facilities.	Yes/No	
4.	Whether holding defence manufacture license or the same has been applied for.	Yes/No	
5.	Whether the firm possess adequate capability to absorb Transfer of Technology (ToT).	Yes/No	
6.	Whether the firm will deliver prototype within 134 weeks from the date of issue of PSO.	Yes/No	

Station :

Signature

Company Seal

Date :

**Note:-**

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not be assessed.

**CONFIDENTIALITY AGREEMENT**

The company understands the security sensitivity of operational equipment. No information pertaining to deployment and usage of the equipment, including scaling will be discussed with any third party without required permission from the Project Facilitation Team. The company understands that failure to observe this agreement will lead to disqualification from the project.

Signature with Company Seal

**Note:-**

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not be assessed.

**CORRECTNESS CERTIFICATE**

It is certified that information submitted in the documents as part of the response to Expression of Interest for the project is correct and complete in all respects. It is acknowledged that the company will be disqualified from further participation if any information provided is found to be incorrect.

Signature with Company Seal

**Note:-**

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not be assessed.

**EOI COMPLIANCE CERTIFICATE**

1. It is certified that the company has understood all the aspects as enunciated in the Expression of Interest (Eol) and **comply with the parameters / comply with all the parameters except the fwg:-**

(a)

(b)

(c)

(d)

2. It is acknowledged that the company will be disqualified if found noncompliant on any of the provisions of DAP 2020 and Eol at any stage.

Signature with Company Seal

**Note:-**

1. All submissions must be on printed copy of Appendix as uploaded on MoD website and should be supported by referenced documents duly authenticated.
2. Any input with incorrect or missing reference will not be assessed.
3. **Please struck off the point that is not applicable.**

**Appendix G**  
(Refer Para 23 of Eol)

**EVALUATION CRITERIA OF DESIRABLE/ENHANCED PERFORMANCE  
PARAMETERS (D/EPP) ARMOURED FIGHTING VEHICLES (AFV) PROTECTION AND  
COUNTER MEASURE SYSTEM FOR TANK T-90 S/SK UNDER MAKE II CATEGORY**

1. **Evaluation of L1 in case of Desirable/Enhanced Performance Parameters (D/EPP)**. D/EPP are those parameters that enhance the capability of the equipment / product, vis-a-vis the essential parameters. If a vendor claims to have equipment meeting the D/EPP as specified in PSQRs, the same is tested for compliance during the FET itself. D/EPP are as under: -

<b><u>S No</u></b>	<b><u>Specification</u></b>	<b><u>Essential Parameters</u></b>	<b><u>Desirable/ Enhanced Performance Parameters</u></b>
(a)	Ability to intercept Kinetic Energy Projectile	The system should deflect or destroy hostile attacks to protect against threats from guided missiles, RPG/RL and projectiles fired upto a velocity of 1000 m/sec.	Should be able to detect and defeat KE projectiles fired from a tank gun with muzzle velocity more than 1000m/s.

2. For evaluation of L1, the credit scores criteria will have an overall effect on the price bid format based on the additional tech score. To bal cost and the tech parameter, the Credit score for Desirable/Enhanced Performance Parameters will be awarded as under:-

<b><u>S No</u></b>	<b><u>Desirable/ Enhanced Performance Parameters</u></b>	<b><u>Credit Score</u></b>	<b><u>Value of Commercial Quote(Price Bid Format)</u></b>
(a)	1000-1500 m/sec	1%	'X' cost multiplied by 0.99
(b)	1501-1800 m/sec	2%	'X' cost multiplied by 0.98
(c)	1801m/sec or more	3%	'X' cost multiplied by 0.97

Station :

Signature

Company Seal

Date :

**INFORMATION PERFORMA**

1. **General Information.**

- (a) Name of the Company.
- (b) Address of the Registered Office.
- (c) Category of Industry (Large Scale/ Medium Scale/ Small/ Micro).
- (d). Nature of Company (Public Limited/ Private Limited).
- (e) CIN.
- (f) Shareholding pattern.

2. **Business Information.**

- (a) Type/Description of current products.
- (b) Products already supplied to Service/PSUs/DRDO/OFB/any other defence organisations.
- (c) Details of ISO, Quality Assurance and other Certification.

3. **Technical Information.**

- (a) Availability of area for factory (including covered, uncovered and bonded space).
- (b) Details of Developmental Facilities:-
  - (i) Manpower.
  - (ii) Inspection and Quality Control.
  - (iii) Laboratory and Drawing Office Facility.
- (c) Integration capabilities for system-of-systems projects.
- (d) Capability criteria specific to the product/solution/technology being offered. (To be decided by SHQ in consultation with Acquisition Wing).

4. **Financial Information.**

- (a) Revenue and Net Profit during the last three Financial Years.
- (b) Present Net Worth of the Company.
- (c) Credit Rating from RBI/SEBI approved agencies.

5. **Foreign Collaborations.**

- (a) Details of foreign collaborations, if any, planned for execution of project.
- (b) Technology received from abroad and assimilated/ planned for execution of project.

6. **Products Already Supplied to:-**

- (a) Indian Army/Air Force/Navy.
- (b) PSUs.
- (c) DRDO and its Laboratories.
- (d) Ordnance Factories.
- (e) Any other Defence Organisation.
- (f) Other Principal Customers.

7. Whether the system being produced by manufacturer / OEM has been certified by any recognised entity / In-service with any other Armed Forces.

8. Any experience in manufacture or collaboration with foreign OEM of complete system/accessories of AFV Protection and Counter Measure System.

Station :

Signature

Company Seal

Date :