

QUESTIONNAIRE: DEVELOPMENT OF 30 MM NAVAL SURFACE GUN
UNDER MAKE-I CATEGORY

1. **Background.** The Ministry of Defence, Government of India, intends to procure 30 mm Naval Surface Gun (NSG) through Make-I procedure of DAP-2020, as a new induction.
2. **Description.** Naval Surface Gun is intended for fitment onboard small ships as primary weapon and on large ships as secondary weapon for engaging fast moving surface targets/ boats. Accordingly it is required to be light weight with a high rate of fire. NSG should be compatible with an EOFCS for detection, tracking and accurate engagement of surface targets at sea. NSG should operate with all types of NATO standard ammunition of 30 mm calibre.
3. **Prototypes.** One prototype.
4. **Production Quantity.** Approximately 70 guns (quantity indicated is only an indicative requirement and is not a firm commitment. Quantity has been provided so as to enable firms to arrive at economy of scale prior providing statement of cost of production).
5. Vendors are requested to furnish information as elucidated in succeeding paragraphs in order to identify prospective vendors who can undertake the said project.
6. Please provide details of the vendor in accordance with Proforma at Annexure I.
7. Please provide description of the vendor organisation in terms of research and development of naval guns, including financial capability and technical expertise.
8. Please provide details regarding major successful projects/ products/ technologies developed/ under development involving Research and

Development in the field of naval guns, particularly naval guns of 30 mm calibre.

9. Please provide details of annual turnover for last three years.
10. Please provide details of similar equipment manufactured by the vendor and supplied in India/ abroad.
11. Please provide details of any equipment manufactured by the vendor and supplied to Indian Navy.
12. Does the vendor have the capability to develop NSG prototype and produce the same indigenously?
13. Will NSG be designed and developed indigenously in India? If no, please provide details of all foreign companies with whom there is a partnership/ Joint Venture/ MoU for carrying out the design and development? Will your company finally hold the IPR of the design so generated during the prototype development phase?
14. Does the vendor have adequate infrastructure to develop, integrate, test and manufacture NSG? If yes, please provide details of the same. If no, what would be the timeframe for establishing the same?
15. What are the areas of uncertainty envisaged by the vendor in the design, development and production of the indigenous development of NSG?
16. What is the approximate indigenous content (in terms of cost percentages) at both Prototype Development Stage and Production Stage (including sub-assemblies)?
17. What are the major components/ systems/ sub-systems that will be indigenously manufactured by the vendor? What will be the source of acquisition for the remaining components/ systems/ sub-systems (details of the source firms may be specified indicating whether the source firms are domestic/ ex-import)?
18. What is the modus operandi for Transfer of Technology (ToT) of the imported technology to achieve self-reliance?

19. What are the anticipated timelines for development of the prototype (including Quality Assessment Tests) and production of bulk quantities? Specify the timelines separately for each.
20. What is the quantity that can be manufactured per year during production?
21. Does the vendor have the ability to provide product support for complete life cycle of NSG?
22. How will the vendor ensure continuous supply of spares for the system, especially for those components being procured ex-import, if any?
23. What are the vendor's recommended list of Special Maintenance Tools (SMTs), Special Test Equipment (STE), Test Jigs (TJs) and fixtures that would be required for maintenance support of its life cycle?
24. What would be the likely cost of AMC in terms of percentage of the cost of procurement?
25. What are the likely design and development costs for NSG prototype?
26. Is the vendor ready to undertake development on No Cost basis in accordance with Make-I scheme including requisite type tests?
27. What will be the approximate budgetary cost for manufacture of 70 NSGs, with a requirement of 20 guns annually? Please provide an estimated budgetary quote as per Annexure II.
28. What are the proprietary technologies incorporated in the system being developed? Are the proprietary technologies indigenous or ex-import? If ex-import, will the foreign vendor transfer the technology? Clarify the Intellectual Property Rights (IPR) for NSG.
29. Is the vendor willing to transfer the technology to any DPSUs in future? If yes, will the ToT include the proprietary technologies?

30. Does the vendor have a valid Government Industrial License for design, development and manufacture of NSG, including its accessories and associated equipment in India?
31. Please provide compliance to industry standards, including quality control.
32. Will the vendor provide upgrades to the product being developed?
33. Will the vendor also carry out necessary R&D on the future generations of NSG?
34. Any additional details in respect of the proposed development carried out may be provided.
35. Please provide details on technical/ operational parameters as follows:-

Ser	Technical Specification/ Operational Parameter
Operational Parameters	
(a)	Calibre of the gun.
(b)	Maximum Effective Range (MER) in km.
(c)	Rate of fire per min.
(d)	Firing modes of NSG.
(e)	Compatibility with existing Indian EOFCS.
(f)	The arc of Traverse of the mounting (in degrees).
(g)	The arc of Elevation of the mounting (in degrees).
(h)	Life of the barrel (in number of rounds or years).
(j)	Weight of gun mounting.
(k)	Which types of ammunition can the gun fire (viz. HE, VT, tracer, armour piercing, incendiary, etc.)?
(l)	Magazine capacity.
(m)	Power supplies required for the operation of the gun.
(n)	Graceful degradation in operation and performance of gun in case of power supply failure.
(p)	Which all ship systems would be required to be interfaced with NSG?
(q)	No. of crew required to operate the gun.

Ser	Technical Specification/ Operational Parameter
(r)	Up to what duration is the gun capable of operating continuously?
(s)	Up to what sea state can NSG operate without degradation in performance?
(t)	Up to what sea state can NSG system operate with graceful degradation in performance?
Quality Assurance Standards	
(u)	Environmental test specifications.
(v)	Vibration requirements.
(w)	Withstanding salt water spray.
(x)	ESS tests for electrical/ electronic equipment and modules.
(y)	Reliability of electronic equipment.
(z)	Design of electronic equipment.
(aa)	Control of EMI.
(aa)	Electromagnetic effects.
(ab)	Software development and documentation.
(ac)	System documentation.
(ad)	Use of LFH cables.
(ae)	Cable glands.
(af)	Configuration Management.
(ag)	Shock test specifications.
(ah)	Paint.
(ai)	Provide details of COTS item/ components to be utilised during IDDM of NSG with their sources (imported or otherwise) and specification/ standard they will comply with.
(aj)	Provide details of all types of connectors to be used iro interfacing requirement between various systems/ sub-systems.
(ak)	Details of grade of switches, LD/ LED employed and specification/ standard they will comply with.
(al)	Provide details of IP rating and applicable standards that NSG shall comply with.
Maintenance	
(am)	The types of mandatory major maintenance schedule on the gun system.

Ser	Technical Specification/ Operational Parameter
(an)	Provision/ procedure for tuning/ gun alignment along with details of tools and jigs.
(ao)	The time interval between major maintenance schedules/ routines on the gun system.
(ap)	The overall availability of the gun system for the entire duration of its service life (in %).
(aq)	Is there any automated testing setup (internal inspection probe/ bot) for monitoring internal health of barrel and capable of predicting barrel life based on data of exploitation/ barrel condition or suggesting predictive maintenance routines?
Miscellaneous	
(ar)	Shelf life and service life of gun (years or rounds).
(as)	Safety features of gun operation including contingencies.
(at)	Integrated Logistic Support. What is the scope and depth of Manufacturer Recommended List of Spares? What is the Mean Time Between Failure (MTBF) and Mean Time to Repair (MTTR) of NSG?
(au)	Operational Limits. Are there any environmental temperature/ humidity limits for operating NSG in Indian atmospheric conditions? Please provide limits and their impact on performance of gun.
(av)	Infrastructure (Operational and Maintenance). Is there a need for building infrastructure for NSG? What is the area/ facilities required onboard ship for stowage of equipment, operation and maintenance/ repairs?
(aw)	Training. Please provide details of simulator/ simulation software for training operators without firing the gun
(ax)	Please provide details of automation in NSG
(ay)	Please provide details of AI incorporated in NSG
(az)	Names of envisaged vendors for NSG ammunition

36. Please explain basic operation of NSG (from loading to firing).

37. Please indicate willingness for trials of NSG on No Cost No Commitment basis.

38. Please provide envisaged modalities for trials of prototype viz. location, platform, source of trial ammunition, duration and methodology.
39. Please submit MSME/ Start Up certificate with validity.
40. Please enclose an undertaking for indigenous design which the firm will be required to submit at EOI stage.
41. Any other information which the vendor would like to submit before the Feasibility Study may be provided.

Annexure IVENDOR INFORMATION PROFORMA

1. Name of the Vendor/Company/Firm. (Company profile including share holding pattern, in brief, to be attached)

2. Type.

- (a) Original Equipment Manufacturer (OEM) Yes/No
- (b) Authorised Vendor of foreign Firm Yes/No (attach details, if yes)
- (c) Others (give specific details).

3. Contact Details.

Postal Address:

City: _____ State: _____

Pin Code: _____ Tele: _____

Fax: _____ URL/Web Site: _____

Email: _____

4. Local Branch/Liaison Office/ Agent (If Any).

- (a) Name and Address.
- (b) Pin code.
- (c) Tel.
- (d) Fax.
- (e) Email.

5. Financial Details. Category of Industry (Large/ Medium/ Small Scale): _____

6. Certification by Quality Assurance Organisation.

Name of Agency	Certification	Applicable From (Date & Year)	Valid Till (Date & Year)

7. Details of Registration.

Agency	Registration No.	Validity (Date)	Equipment
GeM			
DGQA/DGAQA/DGNAI			
OFB			
DRDO			
Any other Government Agency			

8. Membership of FICCI/ASSOCHAM/CII or Other Industrial Associations.

Name of Organisation

Membership Number

9. Equipment/ Product Profile (To be Submitted for Each Product Separately).

(a) Name of Product. (IDDM Capability be indicated against the product. Should be given category wise for e.g. all products under night vision devices to be mentioned together)

(b) Description (attach technical literature).

(c) Whether OEM or Integrator.

(d) Name and address of Foreign collaborator (if any).

- (e) Industrial Licence Number.
 - (f) Indigenous component of the product (in percentage).
 - (g) Status (in service/design & development stage).
 - (h) Production capacity per annum.
 - (i) Countries/agencies where equipment supplied earlier (give details of quantity supplied).
 - (j) Estimated price of the equipment.
10. Any other relevant information.
11. **Declaration**. It is certified that the above information is true and any changes will be intimated at the earliest.

(Authorised Signatory)

Annexure II

STATEMENT OF COST FOR PROTOTYPE DEVELOPMENT OF NSG

Ser	Items	Qty	Imported components cost (i)	Indigenous components Cost (ii)	Approximate Unit Cost in Rupees (i) + (ii)	Any other Details Please mention specific IC content that will be achieved
A.	Cost of fully formed NSG	1				
B.	Cost of associated equipment (specify each line item)	1				
C.	Cost of any special maintenance Tools or special test equipment	1				
D.	Cost of simulator (if being provided separately)					
E.	Project Monitoring and Admin costs	-				
F.	Cost of ToT if any	-				
G.	Any Other Costs (please specify head)					
		Total				

STATEMENT OF COST FOR PRODUCTION GRADE VERSION OF NSG

Ser	Items	Qty	Imported Components Cost (i)	Indigenous Components Cost (ii)	Approximate Unit Cost in Rupees (i) + (ii)	Any Other Details
A.	Cost of NSG					
B.	Cost of associated equipment (specify each line item)					
C.	Cost of any Special Maintenance Tools or special test equipment					
D.	Cost of recommended MRLS					
E.	Cost of documentation					
F.	Cost of simulator (if separate)					
G.	Cost of training aids like models, cut outs etc.					
H.	Cost of training of personnel					
I.	Any other costs					
	Total					

Note: The quantity indicated for production is only an indicative requirement and is not a firm commitment. The quantity has been provided so as to enable firms to arrive at economy of scale prior providing statement of cost of production.