



Directorate of Inventory  
Deletion, ITD Wing,  
Naval Research &  
Development Institute (NRDI)  
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KARACHI

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Inv.Del/ME/Anode 2/IT/24/1290

On PPRA Website

16 September 2024

### INVITATION TO TENDER – INDIGENOUS DEVELOPMENT OF ANODE 2

1. Pakistan Navy is interested in indigenous development of under mentioned item. You are being invited to forward technical and budgetary proposal for manufacturing of said item. In proposal, third party involvement/ outsourcing must be highlighted with detailed scope of work to be undertaken from the third party. Details of required item to be developed is appended below:

<u>Description of Item</u>	<u>Qty</u>	<u>Specifications</u>
Anode 2	50	General, Technical Specifications; Drawing & URD enclosed at Annexes A to D.

2. You are requested to furnish the under mentioned mandatory information (as applicable) in your quotation. Otherwise, the quotation will not be entertained:

- The firm's Sales Tax Registration Number/ Professional Tax Certificate.
- Development cost including 18% GST and all other taxes.
- Terms & Conditions for payments (whether advance payment, required/ not required).

3. The offer is to be submitted in Duplicate as under:

a. Three 'envelopes' should be enclosed to include Commercial Offer (Figures as well as in Words), Technical Offer and Tender Fee. These 03 envelopes should be enclosed in one cover envelope, properly sealed, bearing the address of this office clearly marked 'Quotation for Indigenous Development of **Anode 2** Tender No and Date of opening.

b. Technical Offer: The Technical Offer should contain all relevant specifications along with technical literature/ brochure in an envelope and shall be clearly marked as 'TECHNICAL PROPOSAL' without price, tender number and date of opening. Technical proposal is to be made as per the guidelines contained in Annexes A to C to this letter, while including the following:

- Methodology of Development/ Manufacturing Process.
- Warranty period (minimum 12 Months).
- Validity of quotation (minimum 06 Months).

- (4) Mutated copy of Earnest money (Pay Order/ Demand Draft).
- (5) Project plan is to be provided.
- (6) Availability/ supportability of developed item minimum for 10 years.

c. Feasibility Study: A detailed feasibility study of the **Anode 2** is to be undertaken by your firm and comprehensive report including but not limited to Material Composition, Technical Drawings, Design & Dimension is to be submitted along with the technical offer/ proposal against IT. **Proposals without feasibility study/ design will not be accepted.**

d. Commercial Offer: The Commercial Offer should include price quoted in Figures as well as in Words. The contents 'Commercial Offer' should be clearly marked on the envelope with Tender number and the date of Opening.

e. Tender Fee (Non-Refundable): Pay Order/ Bank Draft is to be enclosed in a separate envelope clearly marked 'Tender Fee of Indigenous Development of **Anode 2**' in respect of "Directorate of Indigenous Technical Development Registration and Indexation Account (Account No. 4000039556 NBP, Avari Towers Branch, Karachi)" amounting on following rates:

S No	Project Cost	Tender Fee
(1)	For total estimated project cost under Rs 0.49 M	Rs. 2,500/-
(2)	For total estimated project cost from Rs 0.5 M upto 0.99 M	Rs. 4,500/-
(3)	For total estimated project cost from Rs 1 M upto 2.49 M	Rs. 7,500/-
(4)	For total estimated project cost from Rs 2.5 M upto 4.99 M	Rs. 15,000/-
(5)	For total estimated project cost Rs 5 M or more	Rs. 23,000/-

f. Cheque. Pay-in-Slip and Cash are not acceptable. Tender Fee is non-refundable. Offers submitted without Tender Fee will not be considered in tendering process.

g. Earnest Money (Refundable): Earnest money in shape of Pay Order/ Demand Draft in favour of 'The Controller of Naval Accounts, 14 Liaquat Barracks, Karachi' must be submitted along with the commercial offer without which no tender will be accepted. The amount of Earnest money is given as under:

- (1) The firms registered with PN/ DITD(S) will submit 2% of the quoted value subject to maximum ceiling of Rs. 0.500 Million.
- (2) The firms non-registered with PN/ DITD(S) will submit 5% of the quoted value subject to maximum ceiling of Rs. 1.000 Million.

**Note:** Mutated photocopy of Earnest money (price may not be visible) is to be provided in technical offer envelope.

4. **Offers are to be dropped (not later than 1100 hours on 14 Oct 24 in the Tender Box placed at ITD Wing (NRDI) or alternatively be send on Mailing Address as follows:**

Directorate of Inventory Deletion  
 Indigenous Technical Development (ITD Wing)  
 Naval Research & Development Institute (NRDI)  
 at NSSD Area, West Wharf Road

KARACHI

Contact No: 021-48508411 - 239

5. Technical Offer i.e. without price and commercial offer will be opened on 15 Oct 24 at 1200 hours.

6. Firm will be required to develop required items as per General/ Technical Specifications, Drawing and URD mentioned at Annexes A to D. Developing firm is to arrange inspections to be undertaken by ITD Wing & reps of End user during development process/ stages.

7. The Development Contract for local development will be awarded after approval of the case by the Competent Financial Authority.

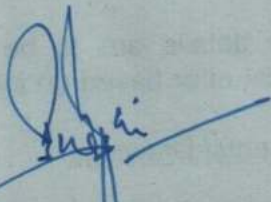
8. Point of contact for subject project in case of any query or further correspondence is H/S/Lt Amjad Javed PN (Tel No: 021-48509461/ 48508411).

9. Special Instructions. Special instructions are as under:

a. Developer is to clearly mention against each clause the reply regarding conformance or otherwise of that clause in 'Developer Remarks' column. **The general remarks that 'all technical or contractual clauses are acceptable' will not be considered sufficient for technical scrutiny.** The offers not conforming to the given format will be technically knocked out. The developer is to provide relevant details of all items being imported for development of project clearly mentioning the origin of items/ parts.

b. Tender document and its conditions may please be thoroughly read point by point and understood properly before quoting. All tender conditions should be responded clearly. In case of any deviation due to non-acceptance of tender conditions, the same should be highlighted along with your changed offer/ conditions.

c. Tender may however, be liable to rejection due to non-acceptance of any one or more conditions outlined by Purchaser in this IT.

  
**AZHAR HUSSAIN TI (M)**  
Captain Pakistan Navy  
Director

Annexes:

- A. General Specifications/ Requirements of Anode 2.
- B. Technical & Material Specifications and Acceptance/ Testing Criteria.
- C. User Requirement Document (URD).
- D. Preliminary Drawings of Anode 2.

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ANNEX A OF IT  
 INV DEL/ME/ANODE 2/IT/24/ 1290  
 DATED 16 SEPTEMBER 2024

GENERAL SPECIFICATIONS/ REQUIREMENTS OF ANODE 2

S NO	GENERAL SPECIFICATIONS/ REQUIREMENTS	MANUFACTURER'S REMARKS (COMPLIED/ NOT COMPLIED)
1.	<p><u>Development Requirements/ Technical Specifications.</u></p> <p>Detailed User Required Document (URD) and Technical data/ Specifications for the indigenous development of Anode 2 is attached at Annexes B, C and D.</p>	
2.	<p><u>Maintainability Requirement.</u> Anode 2 should contain the following:</p> <p>a. Through Life Supportability (maintenances/ spares support) for satisfactory operation of the Anode 2 for at least 10 years is to be ensured by the firm.</p> <p>b. Continued spare supportability is to be ensured for sustained operational availability of the Anode 2.</p>	
3.	<p><u>Material Specifications.</u></p> <p>As per attached Specifications at Annexes B and C and as per prescribed Standard therein. Material conformation certificate to this affect is also to be provided by the firm. Same will also be confirmed/ verified from PNCTA/ other accredited Labs.</p>	
4.	<p><u>Design Requirement/ Criteria for Indigenous Development.</u></p> <p>Design details are to be proposed by the offering firm in technical offer based on information provided at Annexes B, C and D.</p>	
5.	<p><u>Documents/ Drawings.</u></p> <p>a. Following documentation should be provided by the Developer. Moreover template for the operator maintenance manuals and IPC will be provided prior finalization.</p> <p>b. <u>Standards.</u> The developer is to provide the copies of all standards (in English) referred to or used for development of the equipment and its accessories.</p>	
6.	<p><u>Feasibility Study.</u> Firm will be required to submit the feasibility report on the project along with its technical offer indicating details pertaining to the proposed solution in the light of user requirements. In this regard, firm can visit this office to understand the item requirement in details (if required).</p>	
7.	<p><u>Delivery Schedule.</u> Developer will deliver all stores/ equipment/ items as per contractual time/ preferable within 06 months of Contract Effective Date (CED) i.a.w contractual specifications/ requirements. Extension of delivery schedule shall remain the exclusive discretion of DITD (S)/ DID.</p>	

8.	<p><u>Stage Inspections.</u> The firm will allow representatives of DITD (S) /DID/ PND and End user to carry out stage inspections to monitor the progress of work, on 'As &amp; When Required' basis, to verify materials and their quantities being used and check packing and transportation from factory. Schedule for stage inspections will be included in the Contract.</p>	
9.	<p><u>Packing Standard.</u></p> <p>a. The equipment shall be packed as per standard trade packing worthy for transportation by road so as to ensure free from loss or damages on arrival at the ultimate destination.</p> <p>b. A packing note, showing the following details, should be placed on package:</p> <ol style="list-style-type: none"> <li>(1) Manufacturer Part No.</li> <li>(2) Serial Number of Transportation Container.</li> <li>(3) Full nomenclature/ description.</li> <li>(4) Contract number.</li> <li>(5) Date of packing.</li> <li>(6) Special storage environmental conditions (if any).</li> </ol> <p>c. All stores should be marked with broad arrow pointing upwards, by stamping, painting or tallying. Each individual item of stores must bear the pattern number to facilitate identification.</p>	
10.	<p><u>Terms &amp; Conditions for Payments.</u></p> <p>a. Standard payment terms; 90% payment will be made on completion of the project and 10% upon completion of warranty period.</p> <p style="text-align: center;">OR</p> <p>In case the developing firm desires to get advance payment against Advance Bank Guarantee (ABG), payment terms will be as under:</p> <ol style="list-style-type: none"> <li>(1) 20% advance payment against ABG or an equivalent amount valid upto completion of project.</li> <li>(2) 70% payment on completion of project.</li> <li>(3) 10% payment upon completion of warranty period (Minimum 12 months).</li> </ol> <p>b. The supplier has the provision to receive 10% final payment on completion of the project against submission of Bank Guarantee (BG) for equivalent amount which will be released on completion of warranty period.</p>	
11.	<p><u>Warranty/ Guaranty.</u> Warranty/ Guaranty of 01 year after final acceptance of the developed product/ item/ equipment/ store by End user (in writing).</p>	

12.	<p><u>Validity of Quotation.</u> The validity of quotation should be six months.</p>
13.	<p><u>Miscellaneous Requirements.</u> The firm will furnish the under mentioned information along with the Technical Offer:</p> <ul style="list-style-type: none"> <li>a. The firm's Sales Tax Registration Number.</li> <li>b. Valid National Tax Number.</li> <li>c. Professional Tax Certificate (held/ not held).</li> <li>d. The developer is to provide cost breakdown of the development cost including 18% GST and all other taxes. Financial aspects of the entire project including but not limited to following as part of Commercial offer: <ul style="list-style-type: none"> <li>(1) Cost of complete documentation including operation/ maintenance/ manuals etc, if any.</li> <li>(2) Cost of onboard spares, if any.</li> <li>(3) Cost of maintenance tools/ equipment etc, if any.</li> <li>(4) Any other cost.</li> </ul> </li> </ul>

ANNEX B OF IT

INV.DEL/ME/ANODE 2/IT/24/1290

DATED 16 SEPTEMBER 2024

TECHNICAL DATA/ MATERIAL SPECIFICATIONS AND ACCEPTANCE/ TESTING CRITERIA – ANODE 2

S NO	SPECIFICATIONS/ REQUIREMENTS	MANUFACTURER'S REMARKS (COMPLIED/ NOT COMPLIED)						
1.	<p><u>Technical Details.</u></p> <table border="1" data-bbox="263 504 1133 728"> <tr> <td data-bbox="263 504 582 548">a. Description</td> <td data-bbox="590 504 1133 548">Anode 2</td> </tr> <tr> <td data-bbox="263 548 582 593">b. Quantity</td> <td data-bbox="590 548 1133 593">50</td> </tr> <tr> <td data-bbox="263 593 582 728">c. Dimensions / other physical requirement</td> <td data-bbox="590 593 1133 728">As per drawing attached/ original sample.</td> </tr> </table>	a. Description	Anode 2	b. Quantity	50	c. Dimensions / other physical requirement	As per drawing attached/ original sample.	
a. Description	Anode 2							
b. Quantity	50							
c. Dimensions / other physical requirement	As per drawing attached/ original sample.							
2.	<u>Material Composition (%)</u> .							
3.	Material properties are to be as per Appendix 1 to Annex B of IT.							
3.	<p><u>Physical Checks.</u></p> <p>a. Dimensions are to be as per attached drawing</p> <p>b. Surface feel finish as per relevant military standards.</p>							
4.	<p><u>Acceptance Test/ Trials.</u> Developed prototype and bulk supply will be tested as per following procedure.</p> <p>a. <u>Testing Protocol/ Procedure for Prototype.</u></p> <p>(1) Firm will deliver 02 x Anode 2 as prototypes (in addition of contracted quantity) for destructive testing from PNCTA Lab (if required).</p> <p>(2) Dimensions/ size accuracy and feel finish checks will be don as per sample by DITD (S) and End User reps.</p> <p>(3) Raw material test for confirmation of material composition as per Specification from reputable lab against firm's expense on 01 x delivered prototype. Same can be confirmed/ verified from PNCTA Lab (if required).</p> <p>(4) Fit' Form and Function (3F) tests will be conducted with parent equipment by End User at their respective workshop. Upon successful workshop trial prototype (Anode 2) will be tested onboard Platform for one complete Ops cycle (10 weeks).</p> <p>(5) Upon satisfactory acceptance test/ trials. End User will render Acceptance Certificate.</p> <p>b. <u>Testing Protocol/ Procedure for Bulk Supply.</u></p> <p>(1) Re verification of raw material as per Specification from any reputable lab against firm's expense/ PNCTA Lab (if required). After satisfactory result from lab, DITD (S) will inform to firm for development of bulk production.</p> <p>(2) Firm will develop bulk production and inform for stage inspection at firm's premises.</p>							

	<p>(3) Dimensions/ size accuracy and feel finish checks will be done as per sample by DITD (S) and End User reps at firm's premises.</p> <p>(4) Firm will provide developed bulk supply of Anode 2. DITD (S) and PND/ End User reps will randomly pick / collect 03 x developed Anode 2 for testing with parent equipment.</p> <p>(5) Fit' Form and Function (3F) tests will be conducted with parent equipment by End User at their respective workshop.</p> <p>(6) Upon satisfactory acceptance test/ trials. End User will render Acceptance Certificate for final payment to firm.</p>	
	<p>(7) Firm will be liable/ bound to provide bulk production of successfully developed/ contracted product to PN in future through PN Procurement/ Supply Channel for another 10 years, after completion of this contract as and when required by PN.</p>	



APPENDIX-I OF ANNEX B  
INV.DEL/ME/ANODE 2/IT/24/ 1290  
DATED 16 SEPTEMBER 2024

### MATERIAL COMPOSITION OF ANODE 2

1. **Material Grade.** Aluminum Alloy complying with Defense Standard 02-704 (NES 704) and following chemical composition.

Tin	Lead	Magnesium	Silicon	Zinc	Aluminum
0.01%	0.05%	0.16%	<0.01%	3.28%	96.49%

2. **Hardness.** 62 + 2.

ANNEX C OF IT

INV.DEL/ME/ANODE 2/IT/23/1290

DATED 16 SEPTEMBER 2024

USER REQUIREMENT DOCUMENT (URD) – ANODE 2

S No	Specifications/ Requirements	MANUFACTURER'S REMARKS (COMPLIED/ NOT COMPLIED)
1.	<u>Introduction.</u>  Anode 2 is Aluminum based sacrificial anode used to protect F22P ships stabilizer, shaft bracket, rudder, sea chest and rope guard from early degradation/ corrosion.	
2.	<u>Requisite Functionalities.</u>  The indigenously developed item should conform to the desired metallurgy & material composition, dimensional specifications. The manufacturing processes should be complied as per applicable standards. The same is considered essential for the developed product so as to fulfill requisite functionality after onboard installation i.e optimum performance of Anode 2 as per operational parameters.	
3.	<u>Available reference documentation, specifications, layout drawings and relevant operational/ technical details</u>  Constructional document not available, however used sample may be provided when required.	
4.	<u>Acceptance Trials Criteria/ Procedure.</u>  a. On successful development of item same will be tested as per standard and compatibility with existing system. b. Upon satisfactory testing at PND/ Workshop, harbor trials of prototype/ Bulk Supply will be tested for one complete Ops Cycle (10 Weeks). c. Procedure of acceptance test/ trials of Prototype and bulk supply will follow as per Para 4 to Annex B.	

ANNEX D OF IT  
INV.DEL/ME/ ANODE 2/IT/24/1290  
DATED 16 SEPTEMBER 2024

OEM TECHNICAL DRAWING OF ANODE 2

