BMC-OTE-EOI-TCIL-2025 13 May 2025

**INVITATION FOR EXPRESSION OF INTEREST FOR**

**DEVELOPMENT OF TWIN CANISTER INCLINED LAUNCHER (TCIL)**

1.0 **About BrahMos Aerospace:**

BrahMos Aerospace Private Limited is a Joint Venture Company of DRDO, Ministry of Defence. We are inviting interests from firms to provide Twin Canister Inclined Launcher (TCIL) on board Naval warships. Brief description and scope of work for TCIL system is placed as **Enclosure-I (Five (5) Pages).**

2.0 **Procedure to be followed during the Award of Contract:** The firms interested in undertaking the above activities will need to follow the following steps:

(i) Send the Vendor Assessment Form to BAPL via e-mail

(ii) Based on the Vendor Assessment, BAPL will invite all the prospective bidders to BAPL, New Delhi for a meeting (Being a sensitive Defence Location, the exact details of equipment will be made available during the meeting and subsequent RFP).

(iii) Based on the Vendor Assessment by Company Officials and site visit, RFP will be issued to shortlisted firms.

(iv) Based on participation during the bid process (Two Stage: Techno Commercial Bids and Price Bids), firms quoting will be invited for Technical and Commercial Evaluation. The Techno Commercial Evaluation will be carried out on the basis of Quality Cum Cost Basis.

(v) Based on Technical and Commercial Evaluation, technically competent firms will be invited for Cost Negotiation Committee. The Price Bids will be opened in front of all the participating firms.

(vi) Based on the Quality and Price (L1), the Development Order will be placed on the firm.

(vii) This Expression of Interest (EoI) is not an agreement of Placement of Purchase Order for Production Systems.

BrahMos Aerospace Pvt. Ltd. New Delhi



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3.0 **Contact Persons for the Requirement:**

(a) Interested firms will send the Vendor Registration Cum Assessment Forms at the following Mail Id by 30 Jun 25.

**contracts@brahmos.com**

(b) The site visits will be co-ordinated by the following official:

AGM (Design) (Mr Abhineet Kaushik)

BRAHMOS Head Quarters Complex

Delhi Cantt, New Delhi (**Email: design@brahmos.com)**

The site visits needs to be completed within Seven Working Days after the Pre – Qualification is intimated to the firms. In case the applying firm does not qualify the Pre – Qualification, no intimation will be made to them.

4.0 **Vendor Registration Cum Assessment**

The Vendor Registration Cum Assessment Form is uploaded along with this Notice Inviting Pre – Qualification on our Website.

5.0 The decision regarding the selection / rejection will be at the sole discretion of Procuring Entity i.e. BrahMos Aerospace Private Limited.

6.0 The firms will be selected on the following criteria:

| SN | Selection Criteria in the RFP | Applicability |
|---|---|---|
| 1 | Past Experience | (1) Firms should have provided similar services in Ministry of Defence / DRDO / Public Sector Enterprises of similar nature in terms of both Size and Scale.<br><br>(2) Firms enlisted in the above must forward their Certificate of Enlistment along with the Vendor Registration cum Assessment Form.<br><br>(3) If not the above, the firm must have all the facilities as outlined at Enclosure II. |
| 2 | Technical Criteria | Refer Enclosure II.(One Page) |

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| SN | Selection Criteria in the RFP | Applicability |
|---|---|---|
| 3 | Financial Commitment | (1) Firms should possess adequate financial resources to fund the development Purchase order and subsequent production order.<br><br>(2) The financial criteria will be made available as part of RFP. |
| 4 | Statutory and Legal Requirements | (1). The firm must meet all the statutory and legal requirement of an engineering firm.<br><br>(2) In furtherance, all the laws existing for Labour and in due course the changes needs to be adhered by the Firms. |
| 5 | Taxation | (1) The firms must provide GST registration and Valid PAN Number.<br><br>(2) If the firm is MSME, the firm needs to forward the details as per the Vendor Registration cum Assessment form |
| 6 | Disqualified Candidates | Firms debarred by Government of India or any allied departments will be automatically debarred from the Selection Process. |

7.0 Adherence to timelines: Non – Adherence to these timelines will automatically dis qualify the firms.

8.0 BrahMos Aerospace Private Limited looks forward for interested firms in doing business with us. We believe in conduct of our procurement in a free, fair, transparent and equitable way as enshrined in the constitution of India.

(Abhishek Panigrahi)
Additional General Manager
Commercial

BrahMos Aerospace Pvt. Ltd. New Delhi



Abhishek Panigrahi
AGM (Commercial - Production Control)
BrahMos Aerospace

***Enclosure – I***

## BRIEF DESCRIPTION & SCOPE OF WORK FOR TCIL SYSTEM

### 1. TCIL CONFIGURATION

The Twin Cylinder Inclined Launcher is for ensuring storage and operation of two cylinders in inclined positioning. The TCIL has to be suitably installed to the ship deck. TCIL is capable of being installed on any ship without major changes to the main sub-systems.

### 1.1 Principal Parameters:

(a) TCIL has 2 cells in inclined position. Each cylinder is housed in its individual cell.

(b) Dimensions of frame structure of TCIL unit are 10 m (Length) x 2 m (width) x 3.5 m (height) approx.

(c) Total weight of one TCIL with its cylinders is 17 Ton approx.

(d) TCIL can be installed on a carrier with its length along fore and aft line of ship on both side port / starboard side with some specified offset distance. The TCILs are generally oriented in such a way that they are placed symmetrical about fore-aft axis with suitable ship structure so that can withstand the reactions.

### 1.2 Constituents

TCIL has following principal constituents:

(a) Launcher Structure
(b) Clamp Assembly (3, 5 and 7)
(c) Base Structure
(d) Bottom Resting Unit (BRU)
(e) Thrust Bearing Structure (TBS)
(f) Hood Assembly

**1.2.1 Launcher Structure:** - Launcher structure is welded structure constructed out of the box section. The launcher has eight supported legs, which are bolted permanently to the base structure. The structure is provided with clamping arrangements at three places of TLC. The Clamp assemblies are permanently bolted to the launcher structure. This structure supports two cylinders.

1.2.2 **Clamp Assembly (3, 5 and 7):** - The cylinders are placed on the launcher through the clamp assy. There are three clamp assemblies which are bolted to the Launcher structure. Clamp assembly can support two cylinders. This assembly has two halves which are removable. The measuring instruments are mounted on this assembly to measure the alignment of the cylinders with respect to the ship axes.

1.2.3 **Base Structure:** - This structure forms the interface between the launcher structure and the ship structure. The thrust Block is welded at the end of the base structure. All the loads are transferred through these structures to the ship structure.

1.2.4 **Bottom Resting Unit (BRU):** - This component interfaces the bottom of cylinder and the TBS. This structure is in two parts, cylindrical shell and dish end. The cylindrical shell will be assembled with the cylinder first and then umbilical connector is connected to the canister and finally dish end will be bolted with the cylindrical shell. The BRU rest against thrust bearing structure.

1.2.5 **Thrust Bearing Structure (TBS):-** This structure is welded to the aft side of base structure and deck structure with proper alignment. Reaction load of cylinders are transferred through this to the ship structure.

1.2.6 **Hood assembly:** - Hood is a cover mounted on the TCIL to conceal the cylinder while loaded on the launcher and provide protection to launcher from external weather. Hood assembly has mounting pads which remain permanently bolted to the launcher frame structure.

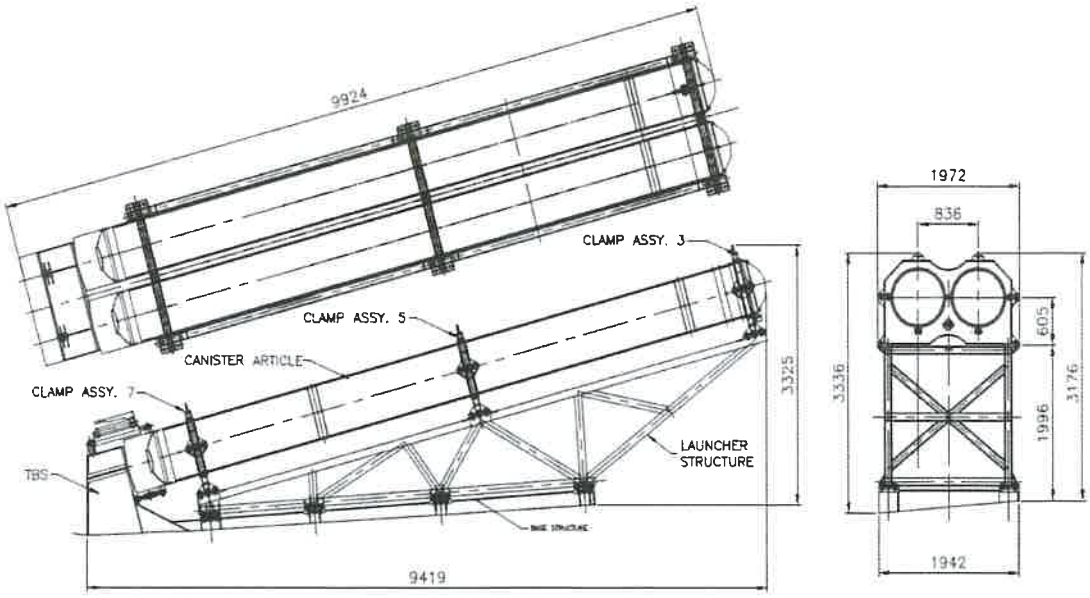


**Fig: - TCIL Assembly**

## 2. OPERATIONAL CONDITIONS OF TCIL

TCIL design should ensure operational readiness in the following conditions:

(a) Atmospheric temperature – from minus 10°C to +60°C at a relative atmospheric humidity of up to 98% at +40°C.
(b) In any meteorological conditions (rain, snow, fog) any time of the day and year.
(c) Under the influence of sea fog and high concentration of salt up to 2-3g/$M^3$.
(d) Salinity- upto 35ppm
(e) At ship velocity 30 knots on any heading.
(f) In conditions of radio-active, chemical and bacterial contamination of atmosphere.
(g) TCIL will comply with MIL standard 461E/F.

## 3. POWER SUPPLY

In automatic mode 24V supply is fed from control system while in manual mode it is available locally.

System needs following power supply for its operation

| | |
|---|---|
| Supply Volt | 415 V / 380 V ± 5%, 3ø AC |
| | 230V± 5%, 1ø AC |
| Frequency | 50 Hz ± 5% |
| Supply Volt | 28 V DC |

## 4. CABLING

The electrical connectors at the bottom of each cell are wired and connected to ship borne control system.

## 5. SERVICE LIFE

(a) Total service life of TCIL is at least 30 years.
(b) The service life of TCIL with replacement of sub-assemblies is 08 years between major repairs. Items with lesser service life can be replaced in situ.
(c) The mechanisms of TCIL ensure reliable operation without any need for regular local checks and servicing, adjustments and tuning while sailing (except scheduled servicing).
(d) Product support and supply of spares for at least 25 years.

## 6. SAFETY PROVISIONS

(a) Provision for interlock has been made to exclude accidental operation of one system simultaneously with other system and to avoid unintended operation of system and mechanisms.

(b) Measures have been taken to ensure that ship's crew is not exposed to untoward danger during operation of TCIL.

(c) In case of emergency situations on the ship, TCIL will facilitate the possibility of carrying out emergency jettisoning of all cylinders. Emergency jettisoning of cylinders can be carried out by using normal scheme of control system operation.

## 7. MTBF and MTTR

TCIL will ensure MTBF of 150 hours and MTTR for a single electric/electronic fault will be less than 15 minutes.

## 8. SCOPE OF WORK FOR TCIL SYSTEM

### A. Manufacture and supply of TCIL system

Detail engineering/production drawing preparation, procurement, manufacture, In-process & final inspection as per BAPL approved QAP and Factory Acceptance Testing of the following:

(a) Preparation of TCIL & sub-assemblies generic master QAPs for approval of DQA (N)

(b) Inclined Launcher Structure assembled with Clamp Assemblies, Bottom Resting Unit, Thrust Bearing Structure and Hood assembly.

(c) Manufacturing and Load testing of Universal handling beam assembly: This item is used for loading/unloading of cylinder in vertical configuration. Calibrated load cell and requisite support (manpower and crane) for conducting and certifying loading gear.

(d) Cylinder and Dummy Caps.

(e) Providing essential support to BAPL for undertaking Factory stage alignment measurements of TCIL structure in assembled condition.

(f) Lifting slings for TCIL.

(g) Preparation of Factory Acceptance Test plan for user.

(h) Assembly, Integration & Functional Testing at Factory (FATs)

(i) Preservation, Packing & Dispatch as per Def. Standard at Indian Navy designated store.

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## B. Supply of Technical Literature to BAPL

| S. No. | Drawing / Document |
|---|---|
| 1 | Manufacturing drawings (AutoCAD format) and Bill of Materials |
| 2 | Detailed 3D and FE model with consolidated reports |
| 3 | User manual with Illustrated List of Spares (ISPL) |
| 4 | Maintenance Manual |
| 5 | Manufacturer recommended list of spares (MRLS) |
| 6 | Components Catalogue for bought out items |
| 7 | Draft Quality Assurance Plan (QAP) and Acceptance Test Plan (ATP) will be prepared by BAPL. Final QAP covering raw material checks, heat treatments checks, welding checks, surface treatment checks, painting checks, visual and dimensional checks, functionality checks, Load tests, Pre-deliver inspection |
| 8 | Test reports as per QAP (Raw material test reports, WPS/WPQ/PQR, stage wise inspection reports, DP reports, certificates of conformance, dimensional inspection reports, Paint reports, Torque application report, Acceptance test / Qualification test report) |
| 9 | CoC and data sheet to be submitted against make and model for all electrical items. |

**Enclosure – II**

**VENDOR QUALIFICATION CRITERIA FROM TECHNICAL POINT OF VIEW FOR MANUFCATURING OF TWIN CANISTER INCLINED LAUNCHER (TCIL)**

1. In-house expertise in 3D modelling, FE Analysis, generation of Auto-Cad drawings and associated sub-assemblies. The industry should have latest version of software and should share the CAD model/FE Model with assembly/manufacturing drawings with BAPL.
2. Vendor should share the details of sub-vendors on whom subsequent orders of component/assembly will be placed.
3. IPR for drawings/ model should rest solely with BAPL. The vendor should share the detailed production drawings, load testing scheme and other FE analysis report with BAPL.
4. Suitable production area of 15,000 $m^2$ approx. for component manufacturing and assembly for multiple TCIL.
5. Availability of load cell and display unit with proper calibration certificate for conducting static/dynamic load test
6. Suitable EOT crane/ Hydra and other load lifting equipment availability at vendor premises for undertaking load testing of Handling Beam.
7. Packing and delivery of equipment with Def. standard.
8. Vendors with past experience in manufacturing and implementing weapon complex for Naval platforms should be preferred.
9. Vendor should have following ISO certification, preferably:
    - ISO 3834: Certification for welding quality system.
    - ISO 9001: Quality management systems- requirements
    - ISO 14001: Environmental management systems
    - ISO 45001: Occupational health and safety management system.
    - ISO 27001: Information security management.
10. Vendors should follow NABL accredited labs verified reports as per QA plan. All test reports to be shared with BAPL.
11. Arrangement of Optical alignment measurements equipment like theodolite, clinometers, porro-prism, stands.
12. Expertise and technical tie up with renowned organization for precise manufacturing and assembly of TCIL and associated sub-assemblies.

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