

Restricted

Document No.: GAW/R&D/70t Trailer/2023/1043- Rev 00

Date : 14th Feb 2023



**M/s. BEML LIMITED,
BEML SOUDHA,
SAMPANGIRAMNAGAR,
BENGALURU – 560002**

**Invitation for Expression of Interest (Eoi)
from Indian companies
for
70t Trailer**

Eoi Reference	Ref. No. GAW/70t Trailer/Eoi/2023/01 dt : 20.02.2023
Eoi closing date	Closing date: 25th February 2023 Time: 13:00 Hrs
Eoi response mail Id	bemleoi@beml.co.in
Contact for technical clarifications	Name: Mr. Mahesh Kumar AGM (R&D - Defence) email: maheshkumar.ms@beml.co.in Contact No.: 8660409916
PLEASE MENTION Eoi Reference in e mail subject	

SN	DESCRIPTION	PAGE NO.
A.	INTRODUCTION	03
B.	OBJECTIVES OF THE EOI	03
C.	SCOPE OF THE COLLABORATION	03
D.	ELIGIBILITY CRITERIA:	03
E.	BROAD DESCRIPTION OF EQUIPMENT.	03
F.	PROJECT STAGES	07
G.	SCOPE OF SUPPLY	09
H.	ACCEPTANCE CRITERIA AND QAP	10
I.	SUPPORT DURING NC-NC TRIALS & TRAINING	15
J.	WARRANTY	16
K.	MATERIALS AND WORKMANSHIP	17
L.	PRODUCT SUPPORT	17
Annexure-1.	VENDOR QUALIFICATION CRITERIA	18
Annexure-2.	TECHNICAL COMPLIANCE SHEET	20
Annexure-3.	COST OF 70T TANK TRANSPORTATION TRAILER	23

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A. INTRODUCTION:

BEML Limited is a leading multi-technology and multi-location company under the Ministry of Defence operating its business in three verticals viz., Defence & Aerospace, Mining & Construction and Rail & Metro. It offers high-quality products for diverse sectors of economy such as Defence, aviation, coal, mining, steel, limestone, power, irrigation, construction, road building, metro & railways.

It has emerged as the forerunner of heavy engineering industry with a track record of growth and revenues for over five decades. For further details please visit our website www.bemlindia.in. The Ministry of Defence, Government of India, intends to procure Quantity 36 numbers of 70 ton Full trailer along with prime mover combination and seeks participation in the procurement process from prospective Bidders.

B. OBJECTIVES OF THE EOI:

To identify potential partners with whom collaboration can be established for co-development & manufacture of 70 t full trailer

C. SCOPE OF THE COLLABORATION

The partner will Design in collaboration with BEML, develop and manufacture 70t Tank transportation trailer.

D. ELIGIBILITY CRITERIA:

Vendor should fulfill the mandatory conditions for responding to this Eoi, as per Annexure-1

E. BROAD DESCRIPTION OF EQUIPMENT.**E-1. INTRODUCTION**

1.1.1. 70t Trailer full trailer is towed in combination with Heavy Mobility Vehicle General Service (tractor), will be employed for transportation of medium tanks, heavy tank and other heavy equipment. The trailer is capable of operating in all types of metalled, Unmetalled / gravelled tracks existing in plains of our country.

1.1.2. The trailer shall be full trailer, with steel platform capable of carrying a 70t payload consisting of tracked vehicles, earthmoving and other heavy equipment.

1.1.3. Anti-skid plates/bars to be provided on the floor of the Trailer Platform and Loading Ramps to prevent slippage of the tank during loading/unloading and movement of trailer.

E-2. TECHNICAL DATA & GENERAL ARRANGEMENT

The leading provisional dimensions and weight of the trailer are as follows:

- a. Platform length (max): 11110 mm
- b. Overall width (max): 4000 mm

Note:

- (a) platform width shall be sufficient to accommodate TWMP(A) fitted Tanks in stowed Position is 3950±50mm. No portion of the loaded tank shall protrude outside the trailer platform.
- (b) Platform Length. The platform length shall be sufficient to accommodate Tanks fitted with TWMP. The tank will be loaded with gun in rear position. No portion of the loaded tank shall foul with the trailer and the gun shall not protrude outside the trailer platform
- c. Platform height ... 1420 ±250
- d. Capacity of trailer ... 70,000Kg
- e. Weight of Trailer ... Less than 28000kg
- f. Ground clearance laden ...400±50mm
- g. Turn Circle Diameter (TCD)... less than 27m,

E-3. OPERATING CLIMATIC CONDITIONS

- a) Minimum Temperature - Between 0°C to 5°C.
- b) Maximum Temperature - Between 40°C and 45°C.

E-4. STABILITY OF LOADS.

The trailer design will ensure stability of loads at:-

- a) Gradeability : Min 7 degree
- b) Side slope stability : Min 9 degree with full payload.
- c) Capable of sustained carriage at maximum payload for 8 hours of the continuous driving on metalled roads.
- d) Maximum towing speed of loaded trailer.
 - I. On metalled roads : Min. 40 kmph.
 - II. On un-metalled /Gravelled tracks : Min. 30 kmph.

E-5. LOADING RAMPS

- (a) Two fixed width foldable ramps shall be provided at the rear for loading and unloading of in-service tracked equipment.
- (b) The ramps will be hydraulically or pneumatically operated with a manual override feature.
- (c) A separate power pack of suitable capacity shall be provided for operation of the ramps.

E-6. DRAW BAR:

A draw bar with swivelling type eye bolt shall be provided for coupling with the Prime Mover.

E-7. SUSPENSION SYSTEM:

A modular suspension system keeping in view the load factors and terrain in which the equipment will operate is to be provided. The suspension system will comply with latest AIS-113 for Trailers

E-8. BRAKE:

Pneumatic Brake System shall be provided in the trailer compatible with brakes of High Mobility Vehicle General Service (70ton). In absence of air pressure, as default, the brakes of the trailer shall be in applied condition. In addition, Lever or Button or mechanically operated Parking Brake System and Emergency Brakes will be provided. The brakes will comply with latest CMVR as amended from time to time.

E-9. Tyres:

- (a) Indian manufactured tyres, which enable sustained operation of trailer with maximum payload for 8 hours on metalled roads shall be provided.
- (b) Twin wheeled configuration meeting IRC-6, Class 70-R is required. Cross country cum highway tyres shall to be provided.
- (c) Spare Wheel. Four spare wheels to be fitted on the trailer itself along with :
 - I. Stowage and handling arrangements.
 - II. Spare wheel mounting bracket.
 - III. Winch Mechanism for lifting /lowering of spare wheel for the stowage
- (d) Central Tyre Inflation System(CTIS) for real time monitoring and inflation of tyres to maintain the rated tyre pressure. System shall facilitate monitoring and inflation of tyres of the vehicle including the tyres of the trailer from the drivers cabin

E-10. Special Fittings

- (a) **Lashing Rings**. Minimum four lashing rings/hooks. Minimum two each on front and rear for securing loaded tank with the trailer shall be provided
- (b) **Track Guides**. Adjustable track guides on the platform to facilitate loading/unloading shall be provided.
- (c) **Winch Rope Guide Rollers**.: Two winch rope guide rollers at the front and one at the rear shall be provided.
- (d) **Winch Rope Guide Pulleys**. Two winch rope guide pulleys on the front and rear side each, one at the top and another below to be provided to guide the winch rope of the tractor during loading and unloading operations.

(e) Lights:

- i. Marker lights with blackout stop/ tail lights shall be provided at front, rear and centre of trailer.
 - ii. Reflector Tape shall be provided along the track guides on the trailer platform.
 - iii. Hazard lights shall be provided at the front, rear and sides of the trailer.
 - iv. Guide lights to be provided on the sides to enable loading of equipment under blackout conditions.
- (f) **Reflector tape:** Red reflector tape shall be provided at the front, rear and sides of the trailer.
- (g) **Trailer Sign:** Trailer 'T' sign plate and number plate shall be provided on the rear left and right side of the trailer respectively.
- (h) Centre of Gravity (CG) indicating arrow marks for payload shall be provided on both sides of the trailer.
- (i) Four sets of lashing chains/steel ropes/nylon belts with turn buckles shall be provided for lashing of equipment to the loading platform.
- (j) Front scotch block, fixed to the chassis covering the entire front tread way will be provided. Two additional movable Chock Blocks will be provided.
- (k) In accordance to clause 4.4 and 4.5 of AIS-113 as amended from time to time, "Trailer shall be fitted with Lateral/ Side Under run protection devices which shall be retractable/ detachable so that the same can be easily removed from the vehicles at unit level in a short time w/o involving workshop.

E-11.ELECTRICAL SYSTEM:

24 Volts DC main supply from the High Mobility Vehicle General Service (70 ton).

E-12.MAINTAINABILITY & ERGONOMIC PARAMETERS

- (a) **Maintenance:** Routine maintenance shall be possible under conditions experienced in the field. All components, especially tyres, shall be readily accessible for repair and field replacement.
- (b) **Service Life:** Minimum 1,00,000 Kilometer or 15 years before overhaul or discard.
- (c) A Tool kit box with locking arrangement shall be provided.
- (d) Two hydraulic jacks 30t shall be provided and stowed in the Trailer for lifting an axle of trailer (in laden condition) to replace the tyres fitted in the axle.
- (e) **Stowage:** Adequate stowage arrangement (closed boxes with locks) shall be provided in the Trailer for stowage of tools and accessories of trailer. The tools

and accessories should have suitable arrangements in the box to prevent shifting during movement of trailer (in laden condition).

- (f) Painting. The trailer will be painted with Olive Green Paint complying to JSS:801 and ISC-294.
- (g) Security. Stowage space(s) and spare wheel(s) provided on the trailer shall have locking arrangements.

F. PROJECT STAGES

Program staged considered as follows

SN	Activity	Delivery Time	
i.	PO Placement	T0	
ii.	Preliminary Design review (PDR)	T1= T0 + 15 Days	
iii.	Critical Design review (CDR)	T2 =T1 + 15 Days	
iv.	Development of 1 No. 70t Trailer	T3= T2+150 Days	
v.	FAT & BEML Trails & Training	T4= T3+20 Days	
vi.	MoD NC-NC field Trails	T5= T4+ MoD trials	

vendor need to accept the following schedule for bulk supply.

SN	Activity	Delivery Time	
i.	Bulk supply PO Placement for 35 No.	T0	
ii.	Delivery of 19Nos. of 70t Trailer	T1= T0 + 11 Month	
iii.	Delivery of 16Nos. of 70t Trailer	T2= T1 + 06 Month	

F-1. PRELIMINARY DESIGN REVIEW:

(will be scheduled within 15 days from the release of PO)

OEM should provide the following technical details to full fill the PDR requirement.

- OEM should make the preliminary design, design document to be submitted
- Finalization of all trailer features as listed in Technical specification document.
- Based on preliminary design 3D model to be submitted to BEML
- OEM should participate in Design review meeting with BEML
- The above deliverables will be reviewed & accepted by BEML.

F-2. CRITICAL DESIGN REVIEW (CDR):

(scheduled after 30days from the release of PO)

OEM should provide the following technical details to full fill the CDR requirements.

- a) Detailed 3D models of Assy. Trailer to be provided in Catia (Ver. 5) preferably / STEP neutral format shall be provided in case of other 3D modeling software used.
- b) 2D installation and assembly drawings of Assy. Trailer to be provided along with the BoM.
- c) Finite element analysis (Stress & Displacement), analysis report to be submitted along with the verification report.
- d) Stability analysis for the Trailer with Payload, analysis report to be submitted. (FE analysis / Hand calculation to be carried out & report to be submitted.
- e) Plan for Factory Acceptance Test (FAT) which will be conducted at OEM premises along with the time schedule.
- f) Design Calculations for Assy. trailer,
- g) Full specification, design assumptions, strength calculations for structural durability, Hydraulic circuits, Electrical circuits and facility for testing. In addition, 2D drawings and models to be presented, describing the form of realization, dimensions and weight estimation. Do not change the product without written permission of the technical coordinator of BEML after this review.
- h) List of Spares for Maintenance & Repair of Trailer to be supplied as part of Contract to be shared.
- i) ATP documents to be prepared & submitted for approvals
- j) The above deliverables will be reviewed & accepted by the BEML.

F-3. DEVELOPMENT

- a) Development activities of the Assy trailer (including the procurement of materials and hardware items, bought out items) shall be started based on the approval of design with CDR recommendations jointly with BEML.
- b) The Assy trailer should incorporate all the features that are finalized in the PDR and CDR.
- c) The bought out items are to be procured and inspected as per specifications.
- d) The integration work is to be reviewed and necessary modifications are to be carried out where applicable.
- e) All steel parts to be painted shall be ensured, complete removal of grease, rust, scale, corrosion, slag etc.
- f) OEM shall supply recommend the list of spares, SMT/STEs along with Trailer.
- g) Design and Development IP rights for the Trailer will be property of BEML.

G. SCOPE OF SUPPLY

1. Design related document, Qty: soft copy (in DVD), one set hard copies.

SN	Description
i.	Bill of Material in Excel format
ii.	2D installation and assembly drawings
iii.	Detailed 3D Model of entire Assy of 70t Trailer [Catia (Ver. 5) preferably / STEP neutral format shall be provided in case of other 3D modeling software used.]
iv.	Design & Analysis Documents (Manual & FEM and other analysis for part & assembly)
v.	Final Configuration documents
vi.	Detailed Technical Feasibility Study Report including all analysis
vii.	Activity Plan (PERT, GANT & Road Map)
viii.	Parts Catalogue (Salient features & specifications with 3D illustrations and exploded views)

2. Manufacturing Documents, Qty: soft copy in DVD, one set hard copies.

SN	Description
i.	Quality Assurance Plan (QAP)
ii.	QT/AT & Acceptance Test Plan (ATP)
iii.	Inspection Report Sheets (IRS)
iv.	Necessary material certificate is emphasized. But heat treatment sample and certificate shall also be supplied
v.	Welding test certificates

3. Main supply items, Qty-1 No. each

SN	Description
i.	70t Tank Transportation Trailer
ii.	Vehicle Tool Kit - 1 Set
iii.	Spare items - 1 Set

iv.	SMT/STEs - 1 Set
v.	Manufacturer Recommended List of Spares (MRLS) for 2 years - 1 set

4. Technical Documents, Qty: soft copy in DVD, one set hard copies

SN	Description
i.	Technical Description manual (TDM)
ii.	Technical Repair manual (TRM) consisting of maintenance, overhaul, repair, etc.,
iii.	User Manual & workshop manual
iv.	Illustrated Spare Parts List in text & Album (ISPL)

Note:

- a) Approvals for all the manuals should be obtained from BEML before delivery.
- b) MRLS items will be drawn after warranty period

H. ACCEPTANCE CRITERIA AND QUALITY ASSURANCE PROCEDURE (QAP)

H-1. Details of Raw Material, Manufactured & B/o aggregates

- Details of Components/Sub-Assemblies Procured

SN	Item Part No.	Drawing No./ Specification No.	Remarks

- Details of in-house manufactured (Components/ Sub-assemblies)

SN	Item Part No.	Drawing No./ Specification No.	Remarks (To include whether assembly contains component ex-import)

- Details of components/ Sub-assemblies purchased from vendors (Other than COTS)

SN	Item Part No.	Drawing No./ Specification No.	Details of source

- Details of components/Sub-assemblies (COTS)

SN	Item Part No.	Drawing No./ Specification No.

- In case of non-availability of co-related Material Test Certificates or the material is procured from traders , all the tests called for in the specification shall be carried out on one sample specimen per lot in Govt Approved/NABL accredited laboratory.
- Seller shall submit the ISPL, specifications details and drawings for the Trailer and supplied accessories, which includes VKL items also and ESP.
- Specifications governing the measurement process or to ascertain the quality, shall be held by the manufacturer and made available when required during the QA process.

H-2. QAP shall contain four stages as follows: -

- Raw materials and bought out items.
- Fabrication/Manufacturing.
- Assembly & Integration.
- Final Acceptance,

H-2.1. Raw materials and bought out items.

SN	Item	Characteristics	Specification	Activity by OEM	Activity by BEML
i.	Chassis Drawbar, Ramps,	Material Chemical Composition & Mechanical properties of Raw materials	To be mentioned by seller	Perform	Verify test results
ii.	Hydraulic System, Suspension cylinders	Material Chemical Composition & Mechanical properties of Raw materials, Type of oil used	To be mentioned by seller	Perform	Verify test results
iii.	Brake System	Chemical Composition & Mechanical properties	To be mentioned by seller	Perform	Verify test results
iv.	Tyres	BIS certificate	To be mentioned by seller	Perform	Verify test results

Note: Test reports shall be from the NABL Accredited laboratory in the premises of Seller or in Govt Lab or Private Lab Accredited by NABL. Tests will be carried out in sample for each lot.

Welder Welding Operator Qualification. These shall be governed by relevant IS and record shall be maintained - Welding Procedure Specification (WPS) Procedure Qualification Record (PQR), Welder / Welding Operator Performance Qualification (WPQ/WOPQ).

Bought-out Items. All bought-out items will be certified for quality by Seller and mandatory checks - measurement, testing, chemical and mechanical properties, visual checks, performance etc shall be performed by Seller and verified by BEML during QA. The documents referred to by Seller shall be drawings, specifications and standards, and test certificates as applicable. Inspection report of the checks will be prepared for all Bought-out items

H-2.2. Fabrication & Manufacturing

- a. All raw materials used in fabrication of the Trailer shall be subjected to checks tests by Seller

SN	Component	Characteristic	Types of check	Acceptance norms	Record	Seller	BEM L
1.	Chassis	Dimensions Welding Quality Stress Analysis	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V
2.	Drawbar	Dimensions Welding Quality	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V
3.	Ramp Assy	Dimensions Welding Quality	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V
4.	Chock block	Dimensions Welding Quality	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V
5.	Suspension	Dimensions Welding Quality	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V
6.	Lashing Chain/ring	Dimensions Welding Quality	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V
7.	Toolbox	Dimensions Welding Quality	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V
8.	Spare wheel carrier	Dimensions Welding Quality	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V

IR: Inspection Report
 P:Perform
 V:Verify

Note: Dimension of the Chassis Frame being critical to the Trailer, fool proof method of checking the dimension before integration shall be ensured as per drawings, so that variations are not observed after integrating components to the chassis frame.

H-2.3. Assembly & Integration.

a. QA checks during assembly and integration will be done as follows

SN	Component	Characteristic	Types of check	Acceptance norms	Record	Seller	BE ML
1.	Chassis, Suspension	Visual Dimensions	As per firms spec/ drawing	As per firms spec/ drawing	IR	P	V
2.	Drawbar & Ramps.	Dimensions Welding Quality	Verification of: Dimension Welding quality NDT (DP & UT)	As per firms spec/ drawing	IR	P	V

Painting. Painting will be done as per governing standards. Surface preparation prior to painting shall be done as per standards. Paint shall be of latest manufacture and as per approved texture by User. QA checks during painting will be done as follows

SN	Component	Characteristic	Types of check	Acceptance norms	Record	Seller	BE ML
1.	Surface preparation /shot blasting	Appearance Coat thickness	Verification of Appearance Coat thickness	As per firms document/ process sheet	IR	P	V
2.	PU Primer, red oxide C6001-53			Spec JSS:8010-83-2912/GSQ R	IR	P	V
3.	PU Olive Green paint ISC 294			Spec JSS:8010-83-2912/GSQ R	IR	P	V

H-2.4. Final Acceptance

Seller shall carryout all checks and offer the trailer to BEML for Final Acceptance. Before offering for Final Acceptance, documentation of QC checks by Seller shall be completed along with requisite test results and inspection report to be duly signed by authorized representative of Seller.

a. Static Checks.

- i. Complete Trailer in Assembled condition, measured for overall dimensions of trailer (visually checked) as per firms specifications/ drawing, Platform length min. 11110 mm, Overall width min 4000mm, Ground clearance > 400mm at 1420mm platform height.
- ii. Physical testing of unladen weight of trailer along with accessories & tools <28t is acceptable
- iii. Physical testing of per row axle weight, < 20T per row of axle acceptable
- iv. Operations of Ramps and Manual override feature
- v. Visual performance of Track guide capable of adjustment
- vi. Visual performance of Winch guide rollers & rope guide pulley operation
- vii. Visual performance of retro reflectors (AIS-090)
- viii. Functioning of Lights, electrical connectors
- ix. Pneumatic pipeline connections
- x. Brake system visual performance as per applicable AIS
- xi. Functioning of Central Tyre Inflation System to maintain pressure as per operation

b. Running Checks.

- i. **Turning Circle Diameter** of Trailer with unladen weight, not more than 25m. visual & measurement by marking the point on flat ground and measurement as per AIS/IS.
- ii. **Coupling of Drawbar with Prime mover** of Trailer with unladen weight, proper coupling as per governing standards
- iii. **Loading ramps stability for Loading 70T** Tracked vehicle, visual check for enable loading of Tank on trailer, any damages and defects shall be recorded
- iv. Gradeability of Trailer with laden weight should be $\geq 7^{\circ}$
- v. Side Slope Stability with laden weight should be $\geq 9^{\circ}$
- vi. Sustained carriage of max. payload for 8 hours (250-300Kms) running
- vii. Max. towing speed on metalled road with 70T laden weight ≥ 40 kmph
- viii. Max. towing speed on unmetalled road with 70T laden weight ≥ 30 kmph
- ix. Central Tyre Inflation System to maintain pressure as per operation with 70t laden weight

- x. Securing payload with lashing rings and lashing chain/steel ropes/ nylon belts with turn buckle arrangement
- xi. Operation of Hydraulic jacks to lift tyres for replacement, with 70T payload

c. After Running Checks - QA Checks during final Acceptance

- i. **Overheating** of Brake drum
- ii. Loosening of chain lashes
- iii. Functioning of parking brake
- iv. Pneumatic system components, air pressure should not drop and shall be within limits as per governing standards
- v. Functioning of Lights
- vi. Condition of loading ramp, its mounting and operation - defect free
- vii. Condition of platform - no defects
- viii. Condition of tyres - No uneven wear and cracks
- ix. Suspension system - No defects/ leakage and intact mounting
- x. Condition of mounting bolts of wheels and brake shoe - Wheel mounting to be tight. No uneven marks on the drum. No uneven wear of liners. Rivets of the liner to be intact.
- xi. Retro reflectors Intact in its position & no breakage or damage
- xii. Intactness of items of VKL in tool box. Items to be secured and no defects or damage.

H-2.5. General terms during Factory Acceptance tests (FAT)

- i) Trailer should be tested as per the ATP document finalized by BEML at OEM premises.
- ii) FAT schedule will be informed well in advance to BEML.
- iii) For any failures during FAT, OEM shall, at his own expense, take necessary action to rectify including design changes (if any), to the satisfaction of the BEML.
- iv) Following points shall be complied during FAT:
 - a) The BEML and OEM shall present a mutually agreed comprehensive FAT Program before the commencement of actual testing.
 - b) All the costs incurred during rectification / failure analysis shall be borne by the OEM.

I. SUPPORT DURING NC-NC TRIALS & TRAINING

OEM shall also participate with BEML during MoD NC-NC trials in India

TRAINING: The OEM should provide Training for the following topics

- i. Operation

- ii. Mounting & Dismounting
- iii. System safety
- iv. Maintenance
- v. Replacement of spares, etc.,
- vi. OEM shall provide tentative training program & schedule.
- vii. Do's and Dont's

OEM should provide 1 set of Hard & soft copies for all the necessary training aids & materials. After completion of the training, training aids and materials used shall become the property of BEML.

J. WARRANTY

Notwithstanding inspection & acceptance by BEML of the hardware under this contract or any clause concerning the conclusiveness thereof, OEM shall provide onsite warranty for a period of 30 months from the date of delivery of Trailer & acceptance by BEML at EM division, KGF, that hardware is free from defects / failures due to workmanship, material or manufacturing non-conformance. The OEM shall be responsible for any defect or failure of trailer, special tools, test and diagnostic equipment, maintenance and unit exchange spares due to defective design, material or workmanship.

The repair and/or replacement of failed components and installation of repaired/replaced components shall be taken by the OEM on his own charge at the Site.

The OEM shall bear custom duty, freight charges and all other expenses involved in collection of defective components and equipment from the Site, and transportation to the manufacturer's works in India or abroad and its return to Site after repairs.

Further, OEM should do any design modification required to any components or equipment as a consequence of failure analysis and modification shall be carried out free of charge.

The OEM shall carry out all replacement and repairs under the warranty promptly and satisfactorily on notification of the defect by BEML immediately.

K. MATERIALS AND WORKMANSHIP

The OEM shall be responsible for meeting the requirement of constructional details, materials & workmanship. All materials and workmanship shall be in every respect in accordance with the proven up-to-date best practice.

All the components used in the construction of this supply shall be from fresh and present stock and not from older stocks. OEM shall provide necessary material certificate to this effect.

100% visual inspection of all components shall be carried out and the components/assemblies shall be free from any defect. Stage inspection to be carried out. All threaded fasteners should turn freely without jamming and to be lubricated wherever called for.

L. PRODUCT SUPPORT:

The OEM shall be required to confirm that, he is in a position to provide product support in terms of maintenance, material and spares for a period of minimum 30 years. The OEM must provide at least 2 Years notice to BEML before closing the production line so as to enable "LIFE TIME BUY" of all the material & spares before closure of the production line. All upgrades & modifications carried out on the equipment during the life cycle must be intimated to buyer.

M. SUBMISSION OF THE EOI

The EOI response to be submitted to BEML by

E-mail: bemleoi@beml.co.in

stating compliance to each points, along with the enclosures to be forwarded by interested reputed firms, mentioning in

Subject: "Expression of Interest from Indian companies for 70t Trailer"

Closing date of Eoi : 25th February 2023

Time : 13 : 00 Hrs

Annexure-1

VENDOR QUALIFICATION CRITERIA

The vendors should fulfill the following eligibility criteria while submitting the tender.

SN	Criteria	Compliance (YES*/NO)
1.	Firm/Company must be registered in India as required by law with minimum Three years of continuous operation and not placed on the restricted list for arms import <input type="checkbox"/> Firm should submit Company registration certificate and self declaration of not on restricted list of arms imports	
2.	Vendor must have demonstrable experience of developing/ customizing hydraulic suspension trailer for payload of min. 70t capacity for defence or commercial application. <input type="checkbox"/> Firm should submit Trailer technical specification photographs/ past supply orders/ customer acceptance letter /	
3.	Vendor with sound financial status – for the past 3 years. <input type="checkbox"/> Firm should submit an Auditor certified statements for the last three year	
4.	Firm should be certified for latest Quality Management System <input type="checkbox"/> Firm should submit an ISO or equivalent certificates,	
5.	Firm should have in-house facilities for Design, Manufacturing, Material processing, Cutting, Assembly, quality control.& Testing of Trailers with Hydraulic suspension as per Job requirements <input type="checkbox"/> Firm should submit photographs of in house facilities, Manpower, list of machineries	
6.	Firm should offer 1 No. 70t trailer to BEML for NC-NC trials	

Note: Technical committee will be formed for short listing the firms. Committee may visit shortlisted firms to assess the manufacturing capacity, quality, infrastructure etc. to finalize the selection of vendor.

Other terms and condition

1. Firm should have experience & capabilities to convert the concept and design specifications to manufactured products.

2. Only the OEM needs to respond to this EOI. Dealers/ distributors/ agents/ representatives need not respond.
3. The firm shall be willing to modify the equipment to the customers need and coproduce the equipment in BEMLs plant in India.
4. BEML will have the sole right to market this product in India & firm shall accept co-branding of the product.
5. BEML will hold IP rights for all technologies developed for the indigenous trailer of this kind.
6. The firm should confirm, as per DAP 2020 the equipment shall meet indigenization criteria ($\geq 60\%$) for Buy (Indian) category i.e. Total Contract Price less taxes and duties.
7. The firm shall note that Govt. of India, Ministry of Defence will be acquiring these trailer stores only through a competitive tender process following DAP 2020 and one equipment has to be offered to the Ministry of Defence for trial testing on No-Cost-No-Commitment (NC-NC) basis. The firm shall be agreeable to offer one equipment abiding this condition back to back.

Annexure-2**TECHNICAL COMPLIANCE SHEET**

S/No	Description	Compliance / Non Compliance
1.	The trailer will be a full trailer capable of carrying a 70 ton payload medium battle tank/heavy tank, earth moving equipment and other heavy equipment during its service life.	
2.	The Trailer should be capable of being towed with Heavy Mobility Vehicle General Service	
3.	Capacity : Payload of the trailer will not be less than 70 Ton on Metalled, Un-metalled /gravelled tracks.	
4.	Dimensions and Weight. Overall dimensions and weight of the trailer to confirm to the following specifications :-	
	(a) Un-laden Weight. Not more than 28 Ton	
	(b) The trailer with a load of 70 Tons to comply IRC standards for axle/ road and bridge classification of IRC class 70-R.	
	(c) Dimensions of Platform (Loading Deck). i. Platform Width. The platform width will be sufficient to accommodate TWMP fitted Tanks. No portion of the loaded tank will protrude outside the trailer platform . ii. Platform Length. The platform length will be sufficient to accommodate Tanks fitted with TWMP. The tank will be loaded with gun in rear position. No portion of the loaded tank will foul with the trailer and the gun will not protrude outside the trailer platform . <ul style="list-style-type: none"> • Length - 11110 mm • Width - 4000 mm 	
	(d) Height of Platform. To be kept to the minimum subject to a ground clearance of not less than 400±50mm in laden condition.	
5.	Climatic Conditions. (a) Minimum Temperature - Between 0°C to 5°C. (b) Maximum Temperature - Between 40°C and 45°C.	
6.	Stability of Loads. The trailer to ensure stability of loads at :- (a) Gradeability : Not less than 7 degree. (b) Side slope stability : Not less than 09 degree. (c) Capable of sustained carriage at maximum payload for 8 hours of continuous driving on metalled roads.	
	Maximum Towing Speed of Loaded Trailer. i. On metalled roads : Not less than 40 Kmph. ii. On un-metalled/Gravelled tracks : Not less than 30 Kmph	

S/No	Description	Compliance / Non Compliance
7.	Turning Circle Diameter: Not more than 27 meters.	
8.	Platform. A steel platform of robust construction of the dimensions to carry a payload of 70 Ton is required	
9.	Loading Ramps	
	(a) Two fixed width foldable ramps to be provided at the rear for loading and unloading of tracked equipment of different width.	
	(b) The ramps will be hydraulically or pneumatically operated with a manual override feature. The ramp angle will not exceed 13 ⁰ to prevent fouling of tanks fitted with TWMP.	
10.	<u>Draw Bar</u> : A draw bar with swivelling type eye bolt will be provided for coupling with the Prime Mover.	
11.	<u>Suspension system</u> : A modular suspension system keeping in view the load factors and terrain in which the equipment will operate is to be provided. The suspension system will comply with latest AIS-113 for Trailers.	
12.	<u>Brake</u> : Pneumatic Brake System will be provided in the trailer compatible with brakes of High Mobility Vehicle General Service (70ton). In absence of air pressure, as default, the brakes of the trailer will be in applied condition. In addition, mechanically operated Parking Brake System and Emergency Brakes will be provided. The brakes will comply with latest CMVR as amended from time to time.	
13.	Tyres:	
	(a) Indian manufactured tyres which enable sustained operation of trailer with maximum payload for 8 hours on metalled roads to be provided.	
	(b) Twin wheeled configuration meeting IRC-6, Class 70-R is required. Cross country cum highway tyres to be provided.	
	(c) Spare Wheel. Four spare wheels to be fitted on the trailer itself along with : I. Stowage and handling arrangements. II. Spare wheel mounting bracket. III. Winch Mechanism for lifting /lowering of spare wheel for the stowage	
	(d) Central Tyre Inflation System(CTIS) for real time monitoring and inflation of tyres to maintain the rated tyre pressure. System will facilitate monitoring and inflation of tyres of the vehicle including the tyres of the trailer from the drivers cabin	
14.	Special Fittings	
	(a) <u>Lashing Rings</u> . Minimum four lashing rings/hooks. Minimum two each on front and rear for securing loaded tank with the trailer will be provided	
	(b) <u>Track Guides</u> . Adjustable track guides on the platform to facilitate loading/unloading will be provided.	

S/No	Description	Compliance / Non Compliance
	(c) <u>Winch Rope Guide Rollers</u> . Two winch rope guide rollers at the front and one at the rear to be provided.	
	(d) <u>Winch Rope Guide Pulleys</u> . Two winch rope guide pulleys on the front and rear side each, one at the top and another below to be provided to guide the winch rope of the tractor during loading and unloading operations.	
	(e) <u>Lights</u> : v. Marker lights with blackout stop/ tail lights be provided at front, rear and centre of trailer. vi. Reflector Tape to be provided along the track guides on the trailer platform. vii. Hazard lights to be provided at the front, rear and sides of the trailer. viii. Guide lights to be provided on the sides to enable loading of equipment under blackout conditions.	
	(f) Reflector tape: Red reflector tape to be provided at the front, rear and sides of the trailer.	
	(g) <u>Trailer Sign</u> : Trailer 'T' sign plate and number plate to be provided on the rear left and right side of the trailer respectively.	
	(h) Centre of Gravity (CG) indicating plates for payload to be provided on both sides of the trailer.	
	(i) Four sets of lashing chains/steel ropes/nylon belts with turn buckles are required for lashing of equipment to the loading platform.	
	(j) Front scotch block, fixed to the chassis covering the entire front tread way will be provided. Two additional movable Chock Blocks will be provided.	
	(k) In accordance to clause 4.4 and 4.5 of AIS-113 as amended from time to time, "Trailer shall be fitted with Rear and Lateral/ Side Under run protection devices which should be retractable/ detachable so that the same can be easily removed from the vehicles at unit level in a short time w/o involving workshop.	
15.	Electrical System: 24 Volts DC main supply from the High Mobility Vehicle General Service (70 ton).	
16.	Anti-skid plates/bars to be provided on the floor of the Trailer Platform and Loading Ramps to prevent slippage of the tank during loading/unloading and movement of trailer.	
<u>Maintainability & Ergonomic Parameters</u>		
17.	<u>Maintenance</u> : Routine maintenance to be possible under conditions experienced in the field. All components, especially tyres, must be readily accessible for repair and field replacement.	

S/No	Description	Compliance / Non Compliance
18.	<u>Service Life:</u> Minimum 1,00,000 Kilometre or 15 years before overhaul or discard.	
19.	A Tool kit box with locking arrangement will be provided.	
20.	Two hydraulic jacks will be provided and stowed in the Trailer for lifting an axle of trailer (in laden condition) to replace the tyres fitted in the axle.	
21.	<u>Stowage:</u> Adequate stowage arrangement (closed boxes with locks) shall be provided in the Trailer for stowage of tools and accessories of trailer. The tools and accessories should have suitable arrangements in the box to prevent shifting during movement of trailer (in laden condition).	
22.	Painting. The trailer will be painted with Olive Green Paint complying to JSS:801 0-83:2012 and ISC-294.	
23.	Security. Stowage space(s) and spare wheel(s) provided on the trailer will have locking arrangements.	

Annexure-3**COST OF 70T TANK TRANSPORTATION TRAILER**

SN	Item	Qty	Rate in Rs.
I.	Cost of 70t Tank Transportation Trailer		
II.	Cost of Vehicle Tool Kit , Spare items, SMT/STEs		
III.	Cost of MRLS for 2 years maintenance		