



BEML LIMITED
(A Govt. of India Mini Ratna Company under Ministry of Defence)
BEML LIMITED, BELAVADI POST Mysore-570018

Expression Of Interest

EOI is invited from the Reputed Firms for Design, development and supply of AC Drive system package for BH240E Electrical Drive Dump Truck

Sl. No.	Description	Last date and Time for submission of EOI
01	Design, development and supply of AC drive system package for BH240E Electrical Drive Dump Truck. <i>(Refer to Annexure -B: Technical features and Scope of Supply of electric drive system)</i>	Closing date :17th June 2021 Time : 05 :00 PM <i>Email id to respond:</i> <i>bemleoi@beml.co.in</i>

2. Guide Lines for submitting the EOI

2.1 The EOI consists of Technical details **through e-mode (e mail) only.**

2.2 As a part of Qualification process, Interested Firms needs to submit the Technical part along with required documents before closing date and time of the EOI.

Please attach all the required documents in the mail .

All the documents should be uploaded in PDF format.

1.0 Back ground:

BEML Limited is a leading multi-technology and multi-location company under the Ministry of Defence. BEML is 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 coal, mining, steel, limestone, power, irrigation, construction, road building, aviation, defence, metro and railways. It has emerged as the forerunner of heavy engineering industry with a track record of growth and revenues for over five decades.

The company has state-of-the-art manufacturing facilities at Kolar Gold Fields, Mysuru, Bengaluru and Palakkad, all possessing ISO 9001-2015 and ISO 14001 (HSC) certifications. BEML has its own world-class composite R&D establishment for Design & Development of products.

The Company has a nationwide Marketing Network and an International Business Division for Exports activity.

Details of BEML Ltd are available at www.bemlindia.in

2.0 Overview of BEML Capabilities:

BEML Limited, a Central Public Sector Enterprise coming under the Ministry of Defence was incorporated in 1964. Subsequently it became a listed company and is engaged in the design, development and manufacturing in the areas of Mining & Construction, Defence & Aerospace and Rail & Metro equipments.

2.1 Mining & Construction:

BEML Ltd is engaged in the business of Hydraulic Excavators, Bulldozers, Wheel Loaders, Wheel Dozers, Dump Trucks, Motor Graders, Pipe Layers, Tyre Handlers, Water Sprinklers and Backhoe Loaders to customers in the Mining and Construction segments.

BEML has also developed Mining Dump trucks of 150 Ton and 200 Ton class and Excavators of both Hydraulic and Electrical of 180 Ton capacity.

2.2 Defence & Aerospace:

BEML Ltd is engaged in the business of High Mobility vehicle for all terrain operations, Heavy Recovery Vehicle, Pontoon Mainstream Bridge Systems, Crash Fire Tenders, Mobile Mast Vehicle, Engineering Mine Ploughs, Tank Transportation Trailers, Weapon Loading equipment, Armoured Recovery Vehicle, Milrail Coaches and Wagons, ground support vehicles and other products to the Indian and other Armed Forces.

2.3 Rail & Metro:

BEML Ltd is engaged in the business of Integral Rail Coaches, Overhead Inspection Cars, AC/DC Electrical Multiple Units, Stainless steel EMUs, Utility vehicles, Track Laying Equipment, Broad-gauge Rail bus, Treasury Vans, Spoil disposal Units to the Indian and other Railways.

BEML Ltd has also successfully diversified into manufacturing state-of-the-art technology stainless steel Metro Cars for various urban Metro Corporations and enjoys a dominant market share in this segment

3.0 Research & Development:

BEML Ltd has R&D establishment for Design & Development of high tech engineering products for its three verticals. It employs over 300 professionals with high experience and skills spanning a wide range of technology areas.

The R&D establishment has CAD Centre, Fluid-power, Powerline, Structural Engineering & Material Science laboratories and is continuously engaged in New Product Development and upgradation of existing products to meet customer requirements. More than 65% of Company's Sales Turnover is through in-house developed R&D products. The R&D expenditure is around 2 ~ 3% of its turnover.

4.0 International Business Division:

BEML has a sizeable market share in export markets with exports to 68 countries across the globe. Over the years this division has exported over 1200 machines covering all the three verticals.

5.0 Requirements:

BEML has charted out a program to develop 240Ton AC drive Dump truck for mining application. BEML is in the process of design and development of 240Ton electrical dump truck and complete electrical drive system is required as a single kit for BH240E electrical drive Dump Truck.

BEML is seeking electrical drive system as complete package for 240Ton electrical drive dump truck from reputed drive system OEMs who are having manufacturing technology and supplied to various Mining and Construction mobile equipment and having their after sales service network in India.

Sl, No.	Terms of reference	Response
01	Should have been a supplier of AC Technology Electricals Drive systems to global mining OEM's for Dump trucks of 200Ton to 400Ton capacity.	
02	Should be Manufacturer of Electrical Drive systems.	
	Should have experience in working with Mining machinery OEM's in design, development and Manufacture of Electric Drive mining Dump trucks.	
03	The supplied electrical drive systems should have worked on 200Ton Dump trucks and above capacity on a global basis satisfactorily for more than three years as on the Date of EOI.	
04	To have capability to develop and supply Planetary gear box/system for AC wheel motors. The drive system shall have suitable electrical / mechanical interface to match with global engine supplier.	
05	Electrical Drive system package should be with latest technology and tools to suit mining environmental conditions. The complete electrical drive system is required as a single kit which consists of <ul style="list-style-type: none"> • Alternator with self ventilation, speed sensor & power cable(from alternator to control group) • Blower for Control panel and Motors cooling/ventilation. • AC Traction motor with planetary gear box , speed sensor and power cables(Motor to control group). • Control panel(includes all drive system controls, Inverters & engine controls) • Complete grid box(including blower motor , fans and grid resistors). • Diagnostic information display, Gear shifter and remote monitoring & diagnostic system. 	
06	Should have supplied electrical package meeting the relevant international and DGMS (<i>Directorate General of Mines Safety</i> - the Indian Government Regulatory agency for safety in mines)safety	

	standards.	
07	AC drive system should provide better motoring & retarding for superior truck performance with higher top speeds, better gradeability and stronger electric braking. The drive control system should provide optimal operational stability and performance with high mechanical efficiency, low maintenance cost. The drive system shall be fully integrated vital drive parameters monitoring system & real time self diagnostic features with built in protections. The drive system shall have better Torque & speed / performance curve in order to Dump Trucks to work at rigorous mining conditions & higher altitudes/temperature.	
08	Drive system manufacturer has to extend full support and cooperation during design, at all stages of equipment build up, in-house testing & field trials along with Training, Documentation support etc.	
09	Technology should be proven in nature and the oldest machines should have clocked more than 50,000 operating hours.	
10	Willingness to work jointly with Design team from BEML for Design, Development and optimization of Electric Dump Trucks at customer site	

6. Contact person details at BEML Ltd., with respect to the Eol:

Interested suppliers shall forward their interest by providing the details of their organization with credentials and areas of interest by providing the time line to following address through email only(bemleoi@beml.co.in)on or before 17-06-2021,Time: 5 PM. **By mentioning Eol Ref. CPC/VDS/Electrical drive/240E in the e mail subject**

Shri. SUNIL KHARAD
 General Manager, Corporate Materials
 BEML Ltd, BEML Soudha
 No 23/1,Sampangiram Nagar
 Bengaluru – 560 027
 Karnataka State,
 INDIA Phone: +91 80 22963 253

Email id: bemleoi@beml.co.in

For technical clarification, kindly contact following official:

Shri. Sudarshan K S
 General Manager, (R & D)
 BEML Ltd, Belavadi post
 Mysuru – 570 018
 Karnataka State,
 INDIA Phone: +91 821-2402 344
 Email: sudhiks.gw@beml.co.in(for technical clarifications only)

7. General Instructions /Terms and Conditions:

1. This is only an invitation for Expression of Interest. No payment will be made to the bidder / responder for any expenses incurred by bidder for responding to offer.
2. The interested suppliers are requested to seek clarifications if any from the above designated contacts.
3. Upon receipt of EOI from the interested companies, any clarification sought by BEML must be submitted within the stipulated period.
4. Companies who have been debarred / black listed by Government of India or any State Government in India need not submit this EOI.
5. BEML Limited reserves the right to accept or reject any EOI or the whole process without assigning any reason.
6. Prospective supplier may also be required to enter into a long-term Supply Agreement for Drive system spares and meet the expected delivery requirements and other Terms & Conditions of RFP / Tender to be issued by BEML on cost basis.
7. Prospective supplier shall provide firm and irrevocable commitment to provide product support in terms of materials, spares, maintenance etc. for a minimum period of 15 years from the date of last supply to BEML.
8. The suppliers who are shortlisted based on the EOI submitted will be contacted for selection of suitable electrical drive system. Upon suitability and technical qualification separate tender will be floated for supply of electrical drive system.
7. All Corrigenda, addenda, Amendments, Time Extensions, Clarifications etc if any to the EOI will be hosted on BEML website www.bemlindia.com only. Interested Firms should regularly visit BEML's websites to keep themselves updated. No separate advertisement shall be published in the News paper in this regard.
8. All Corrigenda, addenda, Amendments, Time Extensions, Clarifications etc if any thus issued shall be part of the Eoi documents.
9. Please upload duly signed with seal an "Undertaking letter" as a token of acceptance of a EOI terms and conditions on firm's letter head as per Annexure-A.

Please print the text as per Annexure-A on your letter head and upload the same duly signed with seal by the Firm along with witnesses name and signature.

Thanking you,
Yours Faithfully,

Sign & Seal of Firm

Annexure A

(To be printed on Firm's letter Head)

To,
Deputy General Manager
Materials Dept. Truck Division
BEML Limited, Belavadi Post.
Mysore-570018.

Sub:- Undertaking with respect to **Eoi-**

Dear Sir,

I/We certify that to the best of my / our knowledge, the particulars furnished by us against the EOI are true.

It is understood that the information furnished will be treated as confidential and will not be divulged to unauthorized persons.

I / we hereby confirm that we have gone through and understood the complete EOI terms and conditions along with its **Corrigenda, addenda, Amendments, Clarifications etc if any to EOI** and accept the same in to-to. As a token of acceptance I / We have signed and affixed seal on each and every page of EOI document **and all Corrigenda, addenda, Amendments, Clarifications etc if any to EOI.**

" In case if it is not found that I/We have not uploaded duly signed all pages of EOI document or not filled all the details or some pages are missing, then it will be deemed that I/We have agreed for all the terms and conditions of the EOI, if the Firm has uploaded duly signed undertaking.

Place:

Date:

(Signature of the Firm)

Full name with seal

Witness: (Name with signature)

1)

2)

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Sign & Seal of Firm

Annexure B

Brief technical specification for Electrical Drive system

Tentative Brief specification :

Payload	: 240 Ton (218 MT)
Body (heap2:1)	: 142 cu.m Standard body
Prime mover	: 2500 hp diesel engine
Drive system	: AC system
Drive system controls	: IGBT drive/latest technology
Alternator	: 2500HP
Continuous Motoring	: 12% Equiv grade
Service and parking brakes	: Hydraulic
Dynamic retarder	: Electrical
Net vehicle weight in kg	: 1,65,000
Gross vehicle weight in kg	: 3,82,724
Tyre	: 40 R 57 - Standard
Length, overall (mm)	: 14400
Wheelbase (mm)	: 6350
Width over tyres, front (mm)	: 6860
Width over tyres rear (mm)	: 7290
Height (mm)	: 6880
Turning radius (mm)	: 14500

Scope of Work and Supply: The kit should includes the following systems/components.

Sl. No.	System/ component description	Qty
01	Alternator, speed sensor & power cable(from alternator to control group) and Blower	01

	should be part of package.	
02	AC Traction motor with planetary gear box , speed sensor and power cables(Motor to control group)	02
03	Control panel(includes all drive system controls, Inverters & engine controls)	01
04	Complete grid box(including blower motor , fans and grid resistors).	01
05	Diagnostic information display, Gear shifter and remote monitoring & diagnostic system.	01

Drive system manufacturer has to assist/supply the following

- Layout & specification for wire harness & power cabling to & between drive system components and also supplier details.
- Finalization of location with the appropriate interfaces for mounting drive components.
- Alternator with dual impeller or Cooling system accessories for 1st proto type development.
- Integration details of Drive system with engine.
- Integration details of Drive system with equipment electrical/Dash board system.
- Instruments and special tools to assemble, repair , maintain and disassemble the equipment at system level.
- Window based software for calibration and trouble shooting of the ssystem.
- Drive system manufacturer has to extend full support and cooperation during design, at all stages of equipment build up, in-house testing & field trials along with Training, Documentation support etc.
- Supply of kit of items for Regenerative braking and trolley assist if customer demands for these features.

- Recommended spares parts list.

GENERAL GUIDELINES:

1. Firm submitting their proposal should have their development facilities within India.
2. Firm must have core expertise in the following areas of work:
 - a) Design and development of Drive system for mining equipments
 - b) Quality assurance and testing
3. The firm should submit a detailed technical proposal comprising the following points:-
 - a) Development approach for the activities mentioned in scope of work.
 - b) Assessment of brief Drive system specifications.
 - c) Duration required by the firm for executing development work.
 - d) Financial background and stability including detailed audited financial statements for the last 5 years.
 - e) Details of warranty practices and services in after sales, number of years for which Spares and Service support offered to customers.
 - f) Suppliers base, leverage and relationship.
 - g) Additional services the Company can offer.
 - h) Company flexibility for production of varied products and quantity.
 - i) Have the firm executed any joint development program to any customer?
4. The following details should be submitted along with EOI
 - a) Company profile, giving details of current activities and management / personnel structure including evidence of incorporation.
 - b) Willingness letter for supplying of complete drive system with all accessories and training on the same.
 - c) Willingness to share the life cycle cost details.

- d) The firm should have executed similar assignment with at least 5 year experience of similar work.
- e) Highlight the infrastructure available / modalities to take up the project.
- f) Any other relevant information considered necessary for successful implementation of the proposed scope of work.

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