



Invitation for Expression of Interest (Eoi)

**Sub: Development and Supply of Air Compressor
Assembly for BEML Engine.**

Reference No. : GP/GP(D)/EOI/Air Compressor/176 Dt.: 19.06.2020

Due on : 31.07.2020

Contact Person:

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Issued by
M/s. BEML, Limited
(Under Ministry of Defence)
Engine Division, Belavadi post
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1. Introduction:

BEML Limited (formerly Bharat Earth Movers Limited) was established in May 1964 as a Public Sector Undertaking for manufacture of Rail Coaches & Spare Parts and Mining Equipment at its Bangalore Complex. The Company has partially disinvested and presently Government of India owns 54 percent of total equity and rest 46 percent is held by Public, Financial Institutions, Foreign Institutional Investors, Banks and Employees. BEML Limited, a 'Miniratna-Category-1', plays a pivotal role and serves India's core sectors like Defence, Rail, Power, Mining and Infrastructure. The Company started with a modest turnover of Rs. 5 Cr during 1965 and today, thanks to its diverse business portfolio, the company has been able to achieve a turnover of more than Rs.3,500 Cr.

The Company operates under three major Business verticals viz., Mining & Construction, Defence and Rail & Metro. The three verticals are serviced by nine manufacturing units located at Bangalore, Kolar Gold Fields (KGF), Mysore, Palakkad and Subsidiary - Vignyan Industries Ltd, in Chikmagalur District. Each Business vertical is headed by a Director who reports to the Chairman & Managing Director of the company. For more details please visit www.bemlindia.in.

BEML, Engine Division, Mysore manufacture appx. 150 Nos of engines. BEML has charted out a program for indigenization of Air compressor for engine.

Engine specification

Engine Type	8 Cylinder, V-type, Air-cooled, 4 Stroke , Direct injection, Turbo, Intercooled Diesel engine
Bore X Stroke	120x140 mm
Displacement	12.7 lit
Rated Power, kW @ rpm	300 @ 1800
Maximum Torque, Nm	1830 @ 1200±100 rpm
Low idling speed	550±50 rpm
High idling speed	2100±50rpm

2. **Brief description of Air Compressor& Scope of Work:**

Scope: Supply of Air compressor assembly and the dimension, accuracy, finish& performance as per the drawing requirements.

Function and construction

The air compressor is designed for mounting in trucks of BEML equipment. It supplies compressed air for the needs of the break systems and possibly for the needs of other compressed air installations of the vehicle.

The compressor is of reciprocating type with pistons and suction manifold of flange design type. The compressor is lubricated with pressurized oil coming by tubing from the motor lubrication system. The cylinder head with a saddle valve plate is cooled with liquid coolant or oil and is connected to the respective engine system. The cylinder is ribbed. It is cooled by air. The crankshaft is mounted in 2 roller bearing and it is fitted with a cone gear. The connecting rod head is split and in the bed for the piston is moulded a bushing. The valves are automatic and lamellate. The compressor sucks air from an effective cleaner which can be identical with the cleaner for the inlet air for the engine. The cooling of the engine crank should not be introduced to the compressor aspiration.

Location of Air compressor



Material

The case, the lid, the cylinder and the valve plate are casting of gray cast iron. The head of the cylinder is a casting from aluminium alloy. The crank shaft and the connecting rod are from steel. The piston is from aluminium alloy.

3. **Technical Specification:**

- o Diameter of cylinder: 90 mm
- o Piston stroke : 50 mm
- o Cylinder capacity: 318 cm²

- o Max. Operating pressure with liquid cooled head: 1400 kpa
- o Max. Operating pressure with oil cooled head: 1000 kpa
- o Performance at discharged pressure of 800 kpa and revolution 1500 1/Min □ 16m³/h
- o The amount of oil in the pressurized air in well worked out compressors max: 1.5g/h
- o Weight: Approx: 16 kg.
- o Service life till overhaul : 420000 km.
- o Reliability : 60000 km.
- o Maintainability : 0.1 Nh/1000 km.
- o Reparability : 0.15 Nh/1000 Km.

4. **Quality requirements**

- i) All dimensions, geometrical accuracies, surface finish should be as per the final drawing & specification requirements.
- ii) The final acceptance of the Air Compressor is based on inspection by BEML.

5. **Deliverables**

Parts:

- I. Supply of minimum 150 Numbers of Air Compressor Assembly annually.

Reports:

- I. Detailed report on performance of component and GA (General Assembly) drawing both 2D and 3D.
- II. Documents on Detailed operation and maintenance manual/ service manual.
- III. All test reports as per Acceptance test Procedure (ATP) documents of BEML.
- IV. All calibration certificate of the instruments used for testing of the air compressor
- V. Fitment and functional report of air compressor on vehicle

6. **GENERAL GUIDELINES:**

- I. The firm should submit a detailed technical proposal comprising the following points, wherever applicable:-
 - a) Development approach for the activities mentioned in scope of work.
 - b) Duration required by the firm for executing development work / supplying part.
 - c) Supplier's base, leverage, and relationship.
 - d) Additional services the Company can offer.

- e) Company flexibility for production of varied products and quantity.
- f) Have the firm executed any joint development program to any customer? If yes, please furnish the details.

II. The following details should be submitted along with EOI (Mandatory)

- a) Company profile, giving details of current activities and management / personnel structure including evidence of incorporation.
- b) The firm should have executed similar assignment with at least 3 year experience of similar work.
- c) Highlight the infrastructure available / modalities to take up the project.
- 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) Any other relevant information considered necessary for successful implementation of the proposed scope of work.

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