



GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS

Qualifying Criteria

For

Design and Development of “Variable Turbine Geometry (VTG) technology based turbocharger” for DLW built 16 cylinder 3100/3300/3600 HP Alco Engine for Indian Railways

Specification No. TS/ED/ 2015/78

Engine Development Directorate  
Research Designs and Standards Organisation  
Manak Nagar, Lucknow- 226 011(India)

## 1.0 Qualifying Criteria for Bidders:

1.1 The bidder should be in line of design, development and manufacture of Variable Turbine Geometry technology Turbocharger for higher fuel efficiency and reduced emissions. The firm itself must possess this qualification. Representation on behalf of a reputed manufacturer or designer/consultant will not be sufficient. The bidder should have designed and developed high efficiency turbochargers for diesel engines of similar or higher horsepower rating. High efficiency is indicated to mean a global efficiency of turbocharger greater than 70% at 3100 hp engine rating.

Global efficiency is defined as below: -

$$\eta_{TC(global)} = \eta_{turbine} \times \eta_{compressor} \times \eta_{mechanical}$$

Here  $\eta_{TC(global)}$  is the turbocharger global efficiency;  $\eta_{turbine}$  is the turbine efficiency,  $\eta_{compressor}$  is the compressor efficiency and  $\eta_{mechanical}$  is the turbocharger mechanical efficiency.

1.2 The bidder must have supplied not less than 200 turbochargers in the last 2 years ending 31st March of the previous financial year. The bidder should submit documents indicating that the bidder has made the above supplies.

1.3 The bidder should have following capabilities: -

1.3.1 Personnel who are qualified and experienced in design and development of high efficiency turbochargers. Qualified and experienced personnel should be available during the currency of the project. The bidder should submit qualification and experience profile of such personnel along with the offer.

1.3.2 The bidder should have requisite machinery and plant and/or software to carry out design, manufacture, inspection and testing of high efficiency turbochargers. The bidder should submit list of relevant machinery and plant used in design, manufacture, inspection and testing of the high efficiency turbochargers.

1.3.3 Turnover of the firm should not be less than Five (5) million US Dollars or equivalent currency on the date of opening, in each of the last three years ending 31st March of the previous financial year.

The firm should submit following documents in support of the above clause

- 1) Balance sheet for last three years.
- 2) Profit and loss accounts statement for last three years.

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