

**PRE-QUALIFICATION CRITERIA FOR CRANKCASE UPPER CASTING TO**  
**DRG No. 3301-16-39**

1. The prospective vendors must be supplying or must have supplied large intricate aluminium engine casting to reputed engine manufactures.
2. The vendors, who are interested in supplying such castings, with zero/proof machining should have their own manufacturing facilities or getting the casting from reputed manufacturers should have tie-up with them. The firm should have a manufacturing base, adequate financial strength as a well-documented quality system. The manufacturer should have adequate infrastructure like sufficient area of industrial shed, power backup, air compressors etc.
3. The casting manufacturer shall buy all input materials for liquid metal as well as for moulding and core making from reputed manufacturers only. Necessary material certificates for all input materials and additives should be available.
4. The vendors must have adequate trained, experienced and skilled manpower.

**5. THE FIRM SHOULD HAVE FOLLOWING FACILITIES  
COMPULSORY AT THEIR PREMISES FOR CASTINGS OF CRANKCASE.**

- a) Aluminium melting (Electrical resistance or LPG fired only) furnaces with control systems of adequate capacity from 500 kg to 1 ton.
- b) Transfer Ladles, holding (preferably with dosing facility) furnaces.
- c) Resin sand moulding.
- d) Capacity of the Auto resin mixer should be 5 to 10 ton preferably.
- e) Suitable core making facilities (like hot box, cold box and shell core) with latest core shooter and related mixers, core ovens etc.
- f) Ladle and dies LPG pre – heating facilities.
- g) The firm should have Argon Degassing (MDU) plant.

- h) The firm should have density meter and porosity detection system to check the effect of the degasification.
- i) Facilities for backelizing.
- k) Heat treatment for T6 process wherever required (solutionising and aging facilities.)
- l) Vacuum impregnation plant for sealing micro porosity.
- m) Firm should have or create autoclave chamber with 6 bar pressure (Firm to indicate the commitment in the tender alternative facility (incase autoclave chamber not available for making the casting).
- n) The general quality requirement of the casting to be manufactured by the vendor shall confirm to the technical document TTM 27-87 for upper crank case casting to drg.no.3301-16-58 SB and M27-25 for lower crank case casting to drg.no.402-06-43.
- o) Pressure testing facilities.
- p) Abrasive blasting / surface cleaning facilities.
- q) Fettling facilities like band saw, mechanical grinders etc.
- r) Firm should have Argon TIG welding facility.

## **QC CRITERIA**

Testing facilities and test equipment's and lab (preferably NABL accredited) should include following facilities.

- 1) Radiography testing equipment/should have tie-up with NABL accredited lab.
- 2) Sand lab for green sand and core sand testing and analysis.
- 3) Wet gravimetric chemical analysis.
- 4) Spectroscope
- 5) The firm should have Mechanical testing lab & Ultrasonic testing lab
- 6) Microscopes for micro structural analysis
- 7) Macro analysis facilities.
- 8) Firm should ensure the supply of items as per drawing dimension and technological requirements.

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