**PRE-QUALIFICATION CRITERIA FOR EXHAUST CAMSHAFT (FULLY FINISHED) TO DRG No. 307-21-1A**

1. The firm should have experience of manufacturing of similar type of cam shaft.
2. The firm should have forging facility or tie up with reputed Forging manufacturer of cam shaft for supply of forging required for Exhaust cam shaft. The requirement/months is approximately 120 Nos and it should be ensured that forging manufacturer should have capacity to meet the requirement.
3. The firm should have CNC turning centres at least 2 Nos. to carryout turning operation so all journals.
4. The firm should have cam lobe milling machine to carryout rough milling of cam lobes.
5. The firm should have deep hole drilling machine or Gun drilling machine to carry out deep hole drilling operation.
6. The firm should have oil hole drilling machine to carry out various drilling operation in journal & cam lobe.
7. The firm should have spline milling machine for carrying out external spline milling operations.
8. The firm should have CNC Cam grinding machine for carrying out cam lobe grinding and journal grinding. The machine should be capable of meeting the close geometric accuracies specified in the drawing.
9. The firm should have super polishing machine to achieve the required surface finish specified in the drawing.
10. The firm should have heat treatment facility or tie up with the reputed firms having good heat treatment facilities for carrying out induction hardening on cam lobes. Also the firm should have oxidation facility to carryout oxidation operation.
11. The firm should have in house inspection facility to check the geometrical dimensions, cam lobe measurement, surface finish, crack deduction etc.
12. The firm should have proper material handling equipment for movement of cam shafts at various stages of machining.
13. The firm should have machining capacity to supply at least 120 cam shafts per month.

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