

ANNEXURE - I

TECHNICAL SPECIFICATIONS

DESCRIPTION OF WORK:

Dismantling of various existing stage components and casing, modification of base frame & mounting pedestals to suit the new casing, erection of new casing, connection of lube oil pipe lines to the new casing, installation of rotor shaft, impeller, diaphragms, bearings, seals, coupling & torque meter, in high speed compressor test rig, alignment and test run at 7000 rpm.

SCOPE OF WORK:

The total work has to be carried out in two phases i.e. PHASI-I & PHASE-II as described below:

PHASE-I

- 1) Dismantling of various existing stage components and casing, modification of base frame & mounting pedestals as per Drawing No. RD DG 3 TM 13 0062 to suit the new casing, installation of new casing, connection of lube oil pipelines to the new casing and alignment of casing.
- 2) Modification of base frame as per drawing No. RD DG 3 TM 13 0062 and as per the below given scope of work
 - Supply & Fabrication of 2 nos. pedestals (supports) as shown in Drg. No. RD DG 3 TM 13 0062 (562 mmX668mm).
 - Machining of pedestals top surface by milling.
 - Removal of existing supports 4 nos. from existing base frame and surface preparation for welding of new supports.
 - Welding of 2 nos. pedestals to existing base frame.
 - Welding of strips on base frame 400mmX40mm X20mm thickness.
 - NDT (UT) testing of welds as required.
- 3) Shrink fitting of first impeller on the shaft for testing of first stage. Measurement & checks for combined run-outs and dynamic balancing of combined shaft & impeller.
- 4) Assembly of first stage diaphragms in compressor casing, blue matching of casing with diaphragms, alignment and boxing-up.
- 5) Assembly of Dia. 70 mm & Dia. 90mm (1 No. Each) journal bearings, Dia. 190mm thrust bearing and alignment of the bearings by maintaining proper clearances & tolerances.
- 6) Installation of rotor shaft with impeller mounted on it and alignment.
- 7) Installation of coupling & torque meter between the gear box & rotor shaft and alignment as required.
- 8) Continuous trial run for 4 hrs at 7000 rpm and resolving of assembly related issues if any.

PHASE-2

- 1) Removal of first impeller from shaft after successful completion of performance testing. Shrink fitting of second new impeller on the shaft for testing of second stage, measurement & checks for combined run-outs and dynamic balancing of combined shaft & impeller. All the above activities except activity No.1 & 2 should be carried out.

GENERAL REQUIREMENTS

- 1) The party shall attend any problems arising during actual testing at 7000 rpm as and when required.
- 2) The activity of PHASE-II will start after successful completion of testing of 1st impeller under PHASE-I and receipt of finished 2nd stage components. Approximately 2-3 months time gap is required for start of PHASE-II activity from the date of completion of PHASE-I activity.
- 3) All the tools & tackles, measuring instruments and shims that are required to do all above activities shall be arranged by us. Available EOT crane of BHEL can be used. The fixtures required for alignment shall be arranged by vendor only.
- 4) The vendors shall visit TML lab for assessment of quantum of work and for any technical clarifications.
- 5) These precision works requires special skill & expertise for maintaining the close tolerances required, for safe running of the test rig at higher speeds (Approx. 7000 RPM). The vendor should have experience in carrying out this type of precision works and they should submit the credentials regarding their capability in carrying out such type of precision works along with technical bid.
- 6) The price should include transportation charges for the base frame & other components to the Vendor's works and back to BHEL for modification, machining, shrink fitting & dynamic balancing etc. that may be required during process of assembly.


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