

**PROJECT :-PALAMURU RANGAREDDY LIFT IRRIGATION SCHEME - II & III****DESCRIPTION: MACHINING OF IMPELLER BLADES (IN 2 PARTS) TO DRG 12040720202 REV 00, PROFILE DRG 02040070401****SCOPE OF WORK**

- 1 Raw material for Impeller Blade Casting (Consisting of 2 parts : Part 1 & Part 2) will be issued from BHEL after submitting Bank Guarantee by the vendor.
- 2 48 nos stainless steel Impeller Blade Casting (One blade consists of 2 parts : Part1 & Part2) to be finish machined all over for thickness & profile in line with profile drawing 02040070401. This generally requires 5 axis CNC machines. However, vendors are free to machine above blades on 3 axis CNC machine but final dimensions should be as per finish machining drawing (12040720202). After awarding contract, issue of blade material may be vary from -10% to -15% as per actual shop loading at our works.
- 3 The material of runner blade casting is 13:4 Cr:Ni (ASTM A 743CA6 NM) and machining allowances on tool point all over shall be 10 to 12 mm which is to be machined off. Machining shall be carried out on all surfaces.
- 4 Grinding shall be carried out on all surfaces after final machining to achieve surface finish of 3.2 micron or better.
- 5 All parameters (including Edge preparation & Inspection) will be followed as per technical requirement of drg 12040720202 Rev 00. Special attention is drawn on TR:4f regarding marking of reference/inspection sections on blade surfaces. Marking of 3 mm dia with depth of 1.5 mm will be required on both sides of blades, the details of which will be given alongwith the 3D model.
- 6 Before start of runner blade machining, vendor to ensure the latest revision of drg from BHEL- Bhopal (HTE) .
- 7 Drg/Sketch of Checking Template for profile to be made by vendor in consultation with BHEL- Bhopal (HTE). Vendor shall manufacture 2 sets of templates. One set of templates shall be used by vendor for checking the profile at his works (as per inspections sheet) & other set shall be supplied to BHEL - Bhopal along with first set of impeller blades.
- 8 Delivery required : 12 No. Blades (One blade consists of 2 parts : Part 1 & Part 2) in 35 days.

**PRE QUALIFICATION CRITERIA: FOLLOWINGS ARE REQUIRED FOR TECHNICAL QUALIFICATION**

- 1 Availability of 5 axis CNC Machines / 3 axis CNC machines. The bidder should submit Machine make with specification & photos.
- 2 Availability of surface finish measuring equipment. The bidder should submit Machine make with specification & photos.
- 3 Vendor should have successfull experience in machining of Francis Hydro Turbine Runner blade profile / Francis Hydro Pump Impeller blade profile on 5 or 3 axis machine and they have to submit the Purchase order with experience and completion certificate for work executed in the last 3 years. Cut off date will be tender opening date (Techno-commercial). However in case of partial completion of PO, lot completion certificate will be required.
- 4 The bidder has to submit last three consecutive CA audited financial annual report (Balance sheet and Profit & loss account) since 2017-18 to 2019-20. Required Financial soundness will be decided by our evaluation committee.

**COMMON POINTS**

- 1 QA plan is applicable. Vendor has to submit the QAP to BHEL (QWT) for acceptance.
- 2 Required tools and fixtures to be arranged by the supplier.
- 3 Any checking gauge/measuring gauge required will be arranged by supplier.
- 4 Inspection will be done at vendor's work by QC- BHEL-Bhopal/TPI as per QAP and MDCC will be required before dispatch.
- 5 After machining, impeller blades should be identified by permanent marker pen with Drawing no, Blade Type (Part1 or Part2) and PO no.
- 6 Qty may be distributed between three vendors in the ratio 3:2:1. L1 Vendor will get 24 Blades (Consisting of 2 parts : Part1 & Part2) for machining out of total 48 nos blades (consisting of 2 parts : Part1 & Part2). In case of technically qualified vendors being less than or equal to 3, the order will be placed among (N-1) parties only where N = No of technically qualified vendors. In such a case, if N = 3, then the Qty will be divided into two parties as L1 : 28 Blades & L2 : 20 blades. Also, if N=2, then entire qty of 48 blades will be given to L1 vendor only. If any vendor is unable to meet our manufacturing requirement than qty may be diverted to other vendors as per our requirement.
- 7 Transportation to & fro will be in vendor scope.
- 8 Rate to be quoted on the basis of blade drg 12040720202 and profile drg 02040070401 will be provided after PO placement.
- 9 L1 vendor will be decided on the basis of Total cost (inclusive of machining Part1 & Part 2 of a blade as well as the template cost)

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