

Indent No	Material Code	Drawing No	Specification No
20201434	W95413600844	1-13601-00051, Rev 05	HW19476, Rev 04

Minimum Qualification Requirements:

1. Experience Requirement:

Vendor must have successfully manufactured and supplied minimum three rotors in material grade 26NiCrMoV11-5/26NiCrMoV14-5 for steam turbines / generators satisfying following weight and dimension requirement on enquiry issue date:

- Must have delivered rotors of weight ≥ 65 Ton with barrel diameter ≥ 1000 mm and rotor length ≥ 12000 mm for steam turbine /generator application
- At least one rotor meeting the above weight and dimension requirements must have been supplied in last seven years.

Note: Rotors supplied with heat treatment, rough machining, axial core trepanning, non-destructive testing and residual stress measurement will only be considered for experience.

In support of above, the vendor has to furnish following details of at least 3 latest supplies in the format given below:

Rotor Shaft, Steel: 26NiCrMoV11-5/26NiCrMoV14-5				
Sl. No	Purchase Order Number / Customer Details	Dimension: Diameter (max) & Length	Delivered weight	Date of supply
1				
2				
3				

Vendor has to submit documentary evidence in support of above listed experience of past supplies. Vendor has to submit test certificates of all above mentioned three rotors.

Test certificates of rotors with duly co-related to above mentioned PO should cover following test results:

- I. Chemical analysis including melting & refining details,
- II. Mechanical properties (surface and core)
- III. Ultrasonic Test Results
- IV. Magnetic Particle Examination report
- V. Residual stress measurement at the surface
- VI. Dimensional Report clearly indicating maximum diameter, length and delivered weight

2. Manufacturing and Testing Facility Requirement:

Manufacturing Facility Requirement:

- a) Vendor must have following in-house manufacturing facilities for manufacturing Rotor Shaft as per enquiry drawing and specification (including cross referred standards)

- Forging,
- Heat treatment facility,

Outsourcing of above activities is not allowed.

- b) Vendor to submit details of in house steel melting and refining facility required for manufacturing enquiry item. In case of outsourcing of ingot, vendor to inform their sub supplier with details of steel melting & refining facility for present enquiry. Vendor must have experience of supplying rotor forging using ingot from this sub supplier. At least one raw material test certificate of the enquiry grade of this sub supplier is to be submitted.

- c) Vendor to submit details of Axial Core trepanning and Machining facility available in house as per enquiry drawing and specification. In case of outsourcing of any of these activity (axial core trepanning / machining), vendor to inform their source with details of their facility and experience of their sub supplier. Vendor must have delivered rotor using manufacturing facility of their sub supplier. Documentary evidence to be submitted.

d) Testing Facility Requirement:

Vendor to submit details of testing facility available in house as per the requirement of enquiry drawing and specification (including all cross referred standards).

In case of outsourcing of any test, vendor to inform details of tests outsourced as well their source details with their credential.

Vendor has to submit filled Annexure 1 for manufacturing and testing facilities required as per enquiry drawing and specification. In case of outsourcing of any operation, details of their sub supplier to be submitted.

- 3. Vendor to confirm that they will manufacture and supply Rotor forging as per BHEL enquiry drawing and specification with all cross referred documents referred therein. Deviation from enquiry drawing and specification is not acceptable.

Vendor to submit details of manufacturing and testing facilities as per format below:

1) STEEL MELTING & REFINING FACILITIES:

Melting Furnaces details (Type, Capacity etc.)	
Refining facility details (Vacuum Degassing etc – Type and Capacity to be submitted)	
maximum ingot size - diameter [mm] - length [mm] - weight [mm]	

In case of outsourcing of ingot, vendor to submit above details of their sub supplier.

2.) FORGING FACILITY:

Press capacity in kN	
Maximum Forging weight in MT	
Manipulator Capacity (maximum) for forging	
Remarks:	

3) Heat Treatment Facilities

1. Heat treatment facility - Maximum diameter, length and weight of shaft which can be heat treated - Temperature monitoring facility as per BHEL specification requirement	
2. Quenching type & medium	

4) Machining Facilities:

1. Facility for Axial Core Trepanning	
2 (a) Minimum & Maximum diameter of the core which can be trepanned (b) Maximum length of axial core that can be trepanned	
3. Surface finish of axial bore (Specify achievable value)	
4. Concentricity, Cylindricity and Parallelity, refer drawing requirement	

In case of outsourcing of any operation, vendor to submit above details of their sub supplier.

5) Testing Facilities:

1. Chemical Testing 2. Mechanical Testing (Tensile, Impact) 3. NDT Facilities – UT, MPI, Boroscopic, Residual Stress Measurement, Magnetic property	
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In case of outsourcing of any test, vendor to submit above details of their sub supplier.

6) Handling Facilities:

1. Crane capacity	
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(Signature & Seal of Vendor)

ANNEXURE- Pre-Qualification criterion – Financial Soundness

Please quote Net worth of the company of year ending as below and documents like Audited Balance sheet/ Certificate from CA/CPA/Bank etc in support of it.

1. **Year ended as 31.03.2020 Or**
2. **Year ended as 31.12.2019 where Calendar Year is in practice.**

The net worth should be positive for qualifying the criterion.