

PRE QUALIFICATION CRITERION FOR PROCUREMENT OF ESR INGOT

IN GRADE X12CrMoWVNbN10-11

ITEM : ESR INGOT

Grade : X12CrMoWVNbN10-11

SPECIFICATION : FF – 04062 R00

1. Minimum Experience Requirement:

In last 3 years, the vendor must have successfully manufactured and supplied atleast two ESR ingot of ≥ 40 T in grade X12CrMoWVNbN10-11 or must have produced Steam Turbine Rotors in this grade made by in house ESR facility with Rotor dispatch weight ≥ 17 T.

Vendor must submit proof of such supplies.

In support of above , the vendor has to furnish details of supplies in the format given below :

ESR Ingot/ Rotor Forging (For Steam Turbine Rotors in grade X12CrMoWVNbN10-11)				
SN	PO No/Customer Details	Ingot/Forging Dimensions : Diameter (max) & Length	Delivered Weight	Year of supply
1				
2				
3				

Beside vendor has to submit documentary evident in support of their experience for past supplies listed above. Vendor has to submit test certificate of all supplies of the claimed experience listed above.

Test Result should cover following test results :

- (a) Chemical analysis
- (b) Mechanical properties at the surface and at the core (in case of forged rotors)
- (c) Melting Details
- (d) Gas analysis
- (e) Metallography report
- (f) Ultrasonic examination results (in case of forged rotors)

2. Technical Qualification :

Prospective vendor shall have at least 5 years of experience in operating ESR furnace and shall have supplied at least two (2) number ingot/rotor forgings in X12 grade processed through ESR outside the prospective vendor's country of origin in the last 3 years.

Vendor must have following in-house manufacturing and testing facilities for manufacturing and testing of ESR ingot as per specification FF-04062 R00.

- (a) Steel melting and refining facilities
 - (b) ESR furnace of 50 T or more.
 - (c) Heat Treatment facility for post heat treatment of ESR ingot.
 - (d) Chemical and gas analysis of ESR ingot.
 - (e) Vendor must list out the quality checks done on the ingot to ensure an ultrasonically sound forging and minimum micro inclusions in the steel so that mechanical properties are achieved after final heat treatment of the forging.
 - (f) Metallography for measurement of inclusion rating, delta ferrite content.
3. Vendor must be financially sound and must provide the balance sheet along with profit and loss account for past 3 years. Net worth for the last three financial years shall be positive. Audited annual financial reports for the past 3 years should be submitted. D & B / creditreform report etc is required to be submitted by foreign vendors.
4. Vendor to confirm supply shall be as per BHEL specification FF-04062 R00. Vendor to confirm if ultrasonic testing is possible in ESR ingots.
5. All documents from the vendor must be in English language.
6. Vendor must specify in the offer the quality checks to be performed on the ingot to ensure that the final forging is free from ultrasonic indications caused due to entrapped inclusions.



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