


NTPC Limited
CC-OS, EOC Noida

Subject: **Qualifying requirement & other details for vendor enlistment – supply of Boiler Tube Bends.**

| | | | | | | | |
|-----------------------|--|--------|----------|-----------------|-------------------|-----------------------|---------------------------------------|
| A) | <p>Details of MEG (Material Enlistment Group)</p> <table border="1"> <tr> <td data-bbox="285 464 630 499">MEG No</td> <td data-bbox="630 464 1424 499">48MEG-03</td> </tr> <tr> <td data-bbox="285 499 630 535">MEG Description</td> <td data-bbox="630 499 1424 535">Boiler Tube Bends</td> </tr> <tr> <td data-bbox="285 535 630 569">Responsibility Centre</td> <td data-bbox="630 535 1424 569">NTPCER-II Head Quarters, Bhubaneshwar</td> </tr> </table> | MEG No | 48MEG-03 | MEG Description | Boiler Tube Bends | Responsibility Centre | NTPCER-II Head Quarters, Bhubaneshwar |
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| MEG Description | Boiler Tube Bends | | | | | | |
| Responsibility Centre | NTPCER-II Head Quarters, Bhubaneshwar | | | | | | |
| B) | <p>Technical Criteria of QR:</p> <p><u>Option-I:</u> The applicant should be a manufacturer of Boilers (Steam Generator) and should have supplied Boiler (Steam Generator) to any 2 (Two) different Thermal power Plants each of Unit Capacity of 200 MW or, higher capacity and which have been commissioned (commercial operation) at least two years prior to the date of application and are in satisfactory operation.</p> <p><u>Option-II:</u></p> <p>1. The applicant should have executed orders for supply of 500 numbers Boiler Tube Bends of Carbon Steel / Alloy Steel / Stainless Steel Tubes with IBR approval in a single order during last 5 years to any Thermal Power plant having unit capacity of 200 MW or, higher capacity or, to any Boiler manufacturer manufacturing and supplying Boilers for a power plant of 200 MW or, higher unit capacity prior to the date of application for enlistment.</p> <p style="text-align: center;">AND</p> <p>2. The applicant must have the following in-house manufacturing & testing facilities:</p> <ol style="list-style-type: none"> a) Cold Bending facility b) Portable XRF Alloy analyser (PMI Machine) c) Rockwell and Vicker's Hardness Tester d) Hydraulic test arrangement for carrying out Hydraulic Test upto 450 KSC e) In-house digitally controlled Heat treatment facility with temperature recorders or, Tie-up with any agency having digitally controlled Heat treatment facility with temperature recorders for Heat treatment facility | | | | | | |
| C) | <p>Documents to be submitted as proof of meeting the stipulated Qualifying Requirements:</p> <p><i>For Option-I:</i></p> <ol style="list-style-type: none"> i. <i>Order Copy evidencing Manufacture & Supply of Boilers of 200 MW or, Higher capacity to two different Thermal Power Plants + execution proof</i> ii. <i>Evidence regarding Date of commissioning of the Boilers / Power Plant</i> iii. <i>Evidence regarding satisfactory operation of the Boilers / Unit from the Owner</i> <p><i>For Option-II:</i></p> | | | | | | |

| | | | | | | | |
|--------|--|--------|--|--------|---|--------|---|
| | <p>i. Copy of Purchase Order for supply of 500 nos. Boiler Tube Bends of Carbon Steel / Alloy Steel / Stainless Steel Tubes with IBR approval in a single order to any Thermal Power plant having unit capacity of 200 MW or, higher capacity during last 5 years prior to the date of application</p> <p>ii. Evidence of the details of manufacturing and testing facilities as mentioned the QR.</p> <p>iii. Evidence of the details of In-house Heat Treatment facility or Tie-up agreement with any Agency regarding Heat Treatment facility as detailed above.</p> <p><u>Applicant should mention in his letter pad under which Option they are applying for enlistment</u></p> <p>To be declared as qualified, an applicant has to meet all the requirements either of option-1 or those option-2</p> | | | | | | |
| D) | <p>Other documents to be submitted:</p> <p>In addition to the documents required in support of meeting technical requirements as stated above, following documents are required to be submitted by the applicant for enlistment:</p> <ol style="list-style-type: none"> 1. Acceptance of specification format (see page 3 of this document) or, any comment thereof 2. Three POs of the highest executed values of similar work during previous five years from the date of application. Copy of Invoice / Completion certificate from the concerned buyer/s in support of successful execution of supply against the POs to be submitted. 3. Audited balance sheet including profit and loss statement for the previous three completed financial years reckoned from the date of application. <p>In case the audited results for the preceding financial year is not available, certification of financial statements from a practicing chartered account may be submitted. In case, Applicant is not able to submit the certificate from practicing chartered Account certifying its financial parameters, the audited results of three consecutive financial years preceding the last financial year shall be considered for evaluating the financial parameters. Further a Certificate would be required from the CEO/CFO as per the format enclosed in the application format documents stating that the financial results of the company are under audit as on the date of Application and the Certificate from the practicing Chartered Accountant certifying the financial parameters is not available</p> <ol style="list-style-type: none"> 4. Any other documents in addition to the above which the applicant wants to submit. | | | | | | |
| E) | <table border="1"> <tr> <td data-bbox="285 1486 435 1520">Note-1</td> <td data-bbox="435 1486 1430 1520">Definition of Similar work (refer to Point 2 of Row D above):- Supply of Boiler tube bends</td> </tr> <tr> <td data-bbox="285 1520 435 1692">Note-2</td> <td data-bbox="435 1520 1430 1692">The executed value means Basic value of quantity of similar works / orders executed / supplied against the reference PO (also applicable to partly executed PO, as on the date of application). Where PO value is composite (i.e. including taxes etc.), the applicant has to submit item wise break up of composite PO value mentioning basic PO Value, Tax details etc.</td> </tr> <tr> <td data-bbox="285 1692 435 1791">Note-3</td> <td data-bbox="435 1692 1430 1791">An agency has to submit undertaking that the bends shall be supplied from the raw material taken from a vendor enlisted by NTPC for seamless straight tubes only and certificate to this regard shall be submitted at the time of inspection.</td> </tr> </table> | Note-1 | Definition of Similar work (refer to Point 2 of Row D above):- Supply of Boiler tube bends | Note-2 | The executed value means Basic value of quantity of similar works / orders executed / supplied against the reference PO (also applicable to partly executed PO, as on the date of application). Where PO value is composite (i.e. including taxes etc.), the applicant has to submit item wise break up of composite PO value mentioning basic PO Value, Tax details etc. | Note-3 | An agency has to submit undertaking that the bends shall be supplied from the raw material taken from a vendor enlisted by NTPC for seamless straight tubes only and certificate to this regard shall be submitted at the time of inspection. |
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| A) Details of MEG | |
|--|----------------------|
| MEG No | 48MEG-03 |
| MEG Description | Boiler Tubes Bend |
| Responsibility Centre | ERII HQ- Bhubaneswar |
| B) Technical Specifications | |
| The Intended Technical specifications of Boiler Tube bends shall be as follows: | |
| 1) Material Code :- | |
| 2) Description of the Item:-Boiler Tube Bend | |
| 3) Tube Size (OD X THK) in MM :- _____ MM X _____ MM | |
| 4) Material :- SA 213 Grade _____ | |
| 5) Radius :- _____mm | |
| 6) Degree of Bend: _____ degree | |
| 7) Applicable drawing: _____ | |
| 8) Certification Required - i) Concerned IBR authority of the state of Manufacture | |
| ii) All Test Certificates | |
| 9) Test Required :- | |
| a) Dimension :- Yes | |
| b) Material Composition By Spectrometer and PMI machine as per NTPC QP. | |
| c) Hardness :-Yes, as per Relevant Standard. | |
| d) Hydraulic Test :- Required at _____ Ksc | |
| e)Heat Treatment: - As per IBR requirement if applicable | |
| 10) Identification Marking:-Each bend to be marked by stenciling as follows: | |
| NTPC P.O No. / Size (OD X THK) /Material / Heat No. / Vendor Name / NTPC Material Code | |
| 11) End Caps: - All bends to be cleaned and the ends to be provided with push fit MS Caps. | |
| 12) Colour Coding:- (_____) at the ends of each bend for ease of identification at site. | |
| 13) Marking:- NTPC Inspection stamps on each bend and each seal to be encircled with white paint for quick identification at site. | |
| 14) Suitable bundle of bends to be tied together with metallic strips and covered with HDPE covers. The tube bundle to be placed in wooden / steel crates. | |

|  | | ITEM: BOILER TUBE BENDS (without any welding) | | | STANDARD QUALITY PLAN | | | | QP NO.: 0000-999-QOM-5-102 REV. NO: 0 DATE :16.05.2018 PAGE 1 OF 3 | | B C ROY <i>B. Roy</i> R K JAIN <i>R. Jain</i> K K CHATTOPADHYAY <i>K. K. Chattopadhyay</i> | | APPROVED BY: <i>[Signature]</i> Approved | |
|---|---------------------------|--|-------|------------------|------------------------------|-----|-----------------------|--------------------|--|----|--|--|--|--------------|
| S.N | COMPONENT & OPERATIONS | CHARACTERISTICS | CLASS | TYPE OF CHECK | QUANTUM OF CHECK | | REFERENCE DOCUMENT | ACCEPTANCE NORM | FORMAT OF RECORD | | AGENCY | | | REMARKS..... |
| | | | | | M | C/N | | | M | C | N | | | |
| 1. | 2. | 3. | 4. | 5. | 6. | | 7. | 8. | 9. | D* | 10. | | | 11. |

| | | | | | | | | | | | | | | |
|-----|---|---|----------|---------------------------|------|------|--|-------------|---|---|---|---|---------------------------------------|--|
| 1.0 | RAW MATERIAL: Raw materials for pressure parts shall be as per approved drawing/Data sheet/ Technical specification/ Pressure Parts Schedule and shall be procured from the approved sources. | | | | | | | | | | | | | |
| 1.1 | Tubes | Chemical test Mechanical test | Critical | TC Verification | 100% | 100% | Approved Drg/Data Sheet /Technical Specifications/ IBR | Mfr TC | √ | P | V | V | | |
| 1.2 | Tubes | NDT (UT/ECT) | Critical | MTC | 100% | 100% | EN10246-7, 1996 or equivalent standard with 5% notch (Min- 0.3mm, Max-1.5mm) | MTC | √ | P | V | V | ECT for t<3.6 mm, else UT. | |
| 2.0 | IN PROCESS INSPECTION: BENDING, SQUEEZING & SIZING, SWAGING | | | | | | | | | | | | | |
| 2.1 | Bends | Post Bend Heat Treatment | Critical | Time & Temp | 100% | 100% | Applicable standard/ IBR | HT Chart | √ | P | V | V | Solution annealing for SS bends | |
| 2.2 | Bends first off trial (FOT) | Departure from circularity(Ovality), Flow area, Thinning, Surface Quality | Major | Measurement Visual | FOT | FOT | Approved Drg/DS /Technical Specifications/ IBR Free from damage | IR | √ | P | V | V | | |
| 2.3 | Bends | Dimensions, Departure from circularity(Ovality), Minimum thickness, Thinning, Surface Quality | Major | Measurement Visual | 100% | 100% | Approved Drg/DS /Technical Specifications/ IBR Free from damage | IR | √ | P | V | V | | |

LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
 ** M: MANUFACTURER/SUB-SUPPLIER C: MAIN SUPPLIER, N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: CUSTOMER HOLD POINT, TC-Test certificate,
 IR- Inspection Report, DS- Data Sheet

FORMAT NO.: QS-01-QAI-P47/F3-R0

P-07A/F3-R0

ENGG. DIV./QA&I



ITEM: BOILER
TUBE BENDS
(without any
welding)

STANDARD QUALITY PLAN

QP NO.: 0000-999-QA-1-5-102
REV. NO: 0 DATE :16.05.2018
PAGE 2 OF 3

B C ROY *BC Roy*
R K JAIN *R K Jain*
K K CHATTERJAY *K K Chatterjey*
APPROVED BY: *[Signature]*
Approved

| S.N | COMPONENT & OPERATIONS | CHARACTERISTICS | CLASS | TYPE OF CHECK | QUANTUM OF CHECK | | REFERENCE DOCUMENT | ACCEPTANCE NORM | FORMAT OF RECORD | | AGENCY | | | REMARKS |
|-----|------------------------|-----------------|-------|---------------|------------------|-----|--------------------|-----------------|------------------|----|--------|--|--|---------|
| | | | | | M | C/N | | | M | C | N | | | |
| 1. | 2. | 3. | 4. | 5. | 6. | | 7. | 8. | 9. | D* | 10. | | | 11. |


| | | | | | | | | | | | | | | |
|-----|------------------|--|----------|-------------|------|------|---|----|---|---|---|---|-------------|--|
| 2.3 | Swaged ends | Thickness, ID boring Swaged length Hardness | Major | Measurement | 100% | 100% | Approved Drg/DS /Technical Specifications | IR | √ | P | V | V | | |
| 3.0 | FINAL INSPECTION | | | | | | | | | | | | | |
| 3.1 | Finished Bends | Dimensions, Departure from circularity(Ovality), Minimum thickness, Surface Quality | Critical | Measurement | 100% | 10% | Approved Drg/DS /Technical Specifications/ IBR | IR | √ | P | W | W | | |
| 3.2 | Finished Bends | Grade verification (for alloy steel and SS) | Critical | Measurement | 100% | 10% | Approved Drg/DS /Technical Specifications | IR | √ | P | W | W | | |
| 3.3 | Finished Bends | Hardness | Critical | Measurement | 100% | 10% | Approved Drg/DS /Technical Specifications | IR | √ | P | W | W | | |
| 3.4 | Steel Ball test | Free passage | Critical | Measurement | 100% | 10% | Approved Drg/DS /Technical Specifications/IBR/Manufacturer's Standard Procedure | IR | √ | P | W | W | | |
| 3.5 | Finished Bends | Hydraulic Test | Critical | Hydro | 100% | 10% | Approved Drg/DS /Technical Specifications/IBR/Manufacturer's Standard Procedure | IR | √ | P | W | W | BY DM WATER | |

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FORMAT NO.: QS-01-QAI-P7A/F3-R

ENGG. DIV./QA&I

|  | | ITEM: BOILER TUBE BENDS (without any welding) | STANDARD QUALITY PLAN | | | | QP NO.: 0000-999-QCM-5-102 REV. NO: 0 DATE :16.05.2018 PAGE 3 OF 3 | B C ROY R K JAIN K K CHATTERJEE | APPROVED BY Approved | | | | | |
|---|---------------------------|--|------------------------------|------------------|---------------------|-----|--|---------------------------------------|----------------------------|----|--------|--|--|---------|
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| 1. | 2. | 3. | 4. | 5. | 6. | | 7. | 8. | 9. | D* | 10. | | | 11. |

| | | | | | | | | | | | | | |
|-----|---|--------------------|----------|--------------|------|------|---|---------|---|---|---|---|--|
| 3.6 | Sponge test | Free from moisture | Critical | Measurement | 100% | 10% | Approved Drg/DS /Technical Specifications/IBR/Manufacturer's Standard Procedure | IR | √ | P | W | W | |
| 3.7 | Painting, Preservation & Protection | Appearance | Major | Visual | 100% | 100% | NTPC approved painting scheme. | Records | √ | P | V | V | |
| | | DFT | | Measurement | 100% | 10% | | | | | | | |
| | | VCI, End capping | | Visual | 100% | 100% | | | | | | | |
| 3.8 | Data compilation & IBR Forms | verification | Critical | Verification | 100% | 100% | Complete documents including IBR forms | Records | √ | P | V | V | |

Note: This QP is applicable for Boiler tube bends without any welding.

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 FORMAT NO.: QS-01-QAI-P-07/AF3R0