

FGD: NPGCL: SLP: 230

Dt. 11-08-2021

| Item Name | Indent No | Indent Dt. | PGMA | Technical Specification |
|--------------|-----------|------------|-------|--|
| SLURRY PUMPS | RFW11273 | 09.08.2021 | FW701 | ROS:9081, Rev:00, Dt:06.08.2021 and TECI:LT MOTOR:REV:05, Dt:28.07.2021 |
| | RFW11274 | 09.08.2021 | FW701 | |
| | RFW11275 | 09.08.2021 | FW997 | |

Project: NPGCL NABINAGAR (3X660 MW) _ W/O: G609-G611.

“Customer/NTPC has informed that in case the item is covered under Sub-QR list, the proposed vendors for the same shall be accepted by QA after acceptance of vendor by NTPC Engg.”

1. Since Slurry Pump appears under Sub-QR item, Sub-QR approved vendor by NTPC Engg. Acceptable to Quality also.
2. Inspection and testing shall be done as per approved Quality plan, Quality plan to be approved by Customer/NTPC after review of BHEL.
3. Painting shall be as per Customer approved Painting schedule.
4. Arrange MQP from sub QR Cleared vendor for taking up with Customer for their review and approval. Find herewith-attached typical MQP (QP NO.FGS:SLP:723/00, DT: 08.01.2021). This MQP involves minimum check only and actual Quantum of Check/Stage may differ based on Project/Customer requirement and their approved MQP.
5. Already NTPC approved latest MQP for similar application if available specific to Vendor may be shared for obtaining faster approval from Customer/Customer Consultant.
6. All the Pumps shall be inspected at supplier works as per approved QP/Approved Drawing/Approved datasheet and Specification.
7. Packing of items shall be as per BHEL Engg Approved Packing Drawing/BHEL Specifications.
8. BHEL Authorized representatives shall have the right to witness the necessary inspection and testing of goods mentioned in the PO. The supplier shall inform BHEL in advance about the readiness of the goods for inspection and testing. Inspection / Inspection wavier / approval by BHEL does not absolve Supplier's responsibility for conformity of the specification as per the terms of PO. Material Test Certificates shall be submitted to BHEL.
9. Annexure 'Q' and BOI's Details shall be part of enquiry File and shall be filled by Supplier with their duly sign and seal.
10. **Vendor Quality Plan shall contain following Inspection Notes:**
 - a. Latest version of standards & Specification shall be applied.
 - b. Materials shall be procured in compliance to Functional Technical specification.
 - c. Gauges and measuring instruments with valid calibration only shall be used.
 - d. Inspection / Inspection wavier / approval by BHEL does not absolve Supplier's responsibility for conformity of the specification as per the terms of PO.
 - e. BHEL /BHEL Authorized representatives shall have the right to witness the necessary inspection and testing of goods mentioned in the PO
 - f. In case of Vendor Drawing & Datasheet, it needs approval by BHEL Engineering.
 - g. This QP shall be read along with relevant PO, BHEL Specification / Approved Drawing / Datasheet.




Prepared by.
Rakesh Kr Madhu (Dy.Mgr/QA)





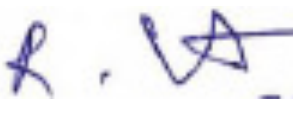
Reviewed & Approved by.
K Renjith(Mgr/QA)

406124/2021/BAR-QA-MECH



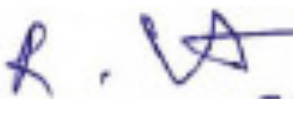
| | | | | | | | | | | | | | |
|--|------------------------|---|-------|----------------------------|------------------|---------------------|------------------|------------------|-------------------------------|-----------------|---|-------------------|--|
|  Ranipet | | MANUFACTURER'S NAME AND ADDRESS Customer Approved Source | | MANUFACTURING QUALITY PLAN | | | | | | | | | |
| | | | | ITEM: SLURRY PUMP | | | | | PROJECT: AS PER PO | | | | |
| | | | | SYSTEM: FGD APPLICATION | | | | | BHEL WO : AS PER INTERNAL W/O | | | | |
| | | | | QP NO. | | FGS:SLP:723, REV:00 | | DATE: 08.01.2021 | | MAIN CONTRACTOR | | M/S BHEL, RANIPET | |
| | | | | | | PAGE NO: | | Page 1 of 5 | | | | | |
| SL. NO | COMPONENT & OPERATIONS | CHARACTERISTICS | CLASS | TYPE OF CHECK | QUANTUM OF CHECK | REFERENCE DOCUMENT | ACCEPTANCE NORMS | 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 MATERIALS

| | | | | | | | | | | | | | |
|-----|-----------------------------|----------------------------------|-------|--|-----------------|--|-------------------|-------------|---|---|---|---|-------------------------|
| 1.1 | Volute Casing, Casing Cover | Chemical & Mechanical Properties | Major | Chemical & Mechanical Properties, Hardness check | 1 Sample / Heat | NTPC Approved GA Drawing / Data Sheet/ Specification | | MTC | √ | P | V | V | |
| 1.2 | Impeller, Wear Plate. | Chemical & Mechanical Properties | Major | Chemical & Mechanical Properties, Hardness check | 1 Sample / Heat | Drawing & Specification | | MTC | √ | P | V | V | |
| 1.3 | Volute Casing | Surface Defects | Major | DPT on machined surface | 100% | ISO4987 | ISO 4987, Level 2 | DPT Report | √ | P | V | V | |
| 1.4 | Cover Plate & Frame Plate | Soundness | Major | RT * | 100 % | ASME Sec V, ASTM - E446 Level - 5 | | Test Report | √ | P | V | V | *For Gypsum Bleed Pumps |
| 1.5 | Shaft | Chemical Composition | Major | Chemical composition | 1 Sample /Heat | Drawing/Specification | | Test Report | √ | P | V | V | |
| | | Mechanical Properties | | Mechanical Tests, Heat treatment if applicable | | Drawing/Specification | | Test Report | √ | P | V | V | HT Chart Review. |




| | | | | | | | |
|--------------------------|--|--|--|---|--|---|--|
| Manufacturer Sign & Seal | Legend: * Record, identified with "tick" (√) under column 'D' shall be submitted to customer as a QA documentation package. M: Manufacturer / Sub supplier, C: Main Contractor/BHEL/BHEL AIA. N: NTPC P: Perform: witness, V: review of records, MA: Major and MI: Minor, DPT: Dye Penetrant Test, UT: Ultrasonic Testing TC: Test Certificate, IR: inspection report, MTC: Material Test Certificate. COC: Certificate of conformance. |  Rakesh Kr Madhu (Dy Mgr / QA) | |  K Renjith (Mgr / QA) | |  R Arunachalam (DGM/QA) | |
| | | Prepared by | | Reviewed by | | Approved by | |
| | | | | | | | |

406124/2021/BAR-QA-MECH

| SL. NO | | COMPONENT & OPERATIONS | | CHARACTERISTICS | | CLASS | | TYPE OF CHECK | | QUANTUM OF CHECK | | REFERENCE DOCUMENT | | ACCEPTANCE NORMS | | FORMAT OF RECORD | | AGENCY | | REMARKS | |
|----------------------------------|--|---|--|---|--|-------|--|----------------------------|--|------------------|--|---|--|---|--|---|--|--------|--|---------|--|
| 1. | | 2. | | 3. | | 4. | | 5. | | 6. | | 7. | | 8. | | 9. | | D* | | 11. | |
| | | | | Hardness Test | | | | Mechanical Hardness | | 100% | | Drawing/Specification | | Test Report | | √ | | P | | V | |
| | | | | Internal Soundness | | | | UT | | 100% | | ASTM A 388 | | ASTM A 788 | | UT Report | | √ | | P | |
| | | | | Surface & Sub Surface Defects | | | | MT-on m/c Surface | | 100% | | ASTM E709 | | ASTM A 788 | | MT Report | | √ | | P | |
| 1.6 | | Impeller | | Surface & Sub Surface Defects | | Major | | DPT | | Accessible Areas | | ISO4987 | | ISO 4987, Level 2 | | DPT Report | | √ | | P | |
| 2.0 IN PROCESS INSPECTION | | | | | | | | | | | | | | | | | | | | | |
| 2.1 | | Impeller/Volute Casing/ Wear Plate / Casing Cover/ Shaft After Machining | | Surface Condition/ Defects/ Measurement | | Major | | Visual and Measurement | | 100% | | Drawing | | IR (Protocol) | | | | P | | - | |
| 2.2 | | Couplings | | Verification of TC | | Major | | Review of TC | | 100% | | Technical Specification / Drawing | | COC/TC | | √ | | P | | V | |
| 2.3 | | Rotating Parts | | Balancing | | Major | | Static & Dynamic Balancing | | 100% | | ISO 1940 | | ISO 1940, grade 2.5 or lower | | Balancing Report | | √ | | P | |
| 2.4 | | Volute Casing | | Soundness | | Major | | Static | | 100 | | 20% | | See | | No Leakage | | Test | | √ | |
| | | Legend: * Record, identified with "tick" (√) under column 'D' shall be submitted to customer as a QA documentation package. M : Manufacturer / Sub supplier, C : Main Contractor/BHEL/BHEL AIA. N : NTPC P : Perform: witness, V : review of records, MA : Major and MI : Minor, DPT : Dye Penetrant Test, UT : Ultrasonic Testing TC : Test Certificate, IR : inspection report, MTC : Material Test Certificate. COC : Certificate of conformance. | | | | | | | | | |  | |  | |  | | | | | |
| Manufacturer Sign & Seal | | | | | | | | | | | | Rakesh Kr Madhu (Dy Mgr / QA) | | K Renjith (Mgr / QA) | | R Arunachalam (DGM/QA) | | | | | |
| | | | | | | | | | | | | Prepared by | | Reviewed by | | Approved by | | | | | |

| | | | | | | | | | | | | | | |
|--|--|--|--|----------------------------|---|--------------------|----------------|--|--------|--|--|--|---|---|
| | | | | Pressure Testing of Casing | % | /10 % of each type | Remarks Column | | Report | | | | W | Pressure at 2x rated head or 1.5x shut of head whichever is higher for 30min. |
|--|--|--|--|----------------------------|---|--------------------|----------------|--|--------|--|--|--|---|---|



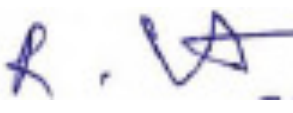
| | | | | | | | | | | | | | |
|-----|------------------------|--------------|-------|----------------------|-------|---|---------------------|----|---|---|---|---|--|
| 3.1 | Complete Pump Assembly | Completeness | Major | Visual & Dimensional | 100 % | * | Approved GA Drawing | IR | √ | P | W | W | |
|-----|------------------------|--------------|-------|----------------------|-------|---|---------------------|----|---|---|---|---|--|

| | | | | |
|--------------------------|---|---|---|---|
| | <p>Legend: * Record, identified with "tick" (✓) under column 'D' shall be submitted to customer as a QA documentation package. M: Manufacturer / Sub supplier, C: Main Contractor/BHEL/BHEL AIA. N: NTPC P: Perform: witness, V: review of records, MA: Major and MI: Minor, DPT: Dye Penetrant Test, UT: Ultrasonic Testing TC: Test Certificate, IR: inspection report, MTC: Material Test Certificate. COC: Certificate of conformance.</p> |  |  |  |
| Manufacturer Sign & Seal | | Rakesh Kr Madhu (Dy Mgr / QA) | K Renjith (Mgr / QA) | R Arunachalam (DGM/QA) |
| | | Prepared by | Reviewed by | Approved by |


406124/2021/BAR-QA-MECH

| SL. NO | | COMPONENT & OPERATIONS | | CHARACTERISTICS | | CLASS | | TYPE OF CHECK | | QUANTUM OF CHECK | | REFERENCE DOCUMENT | | ACCEPTANCE NORMS | | FORMAT OF RECORD | | AGENCY | | REMARKS | |
|--------------------------|--|--|--|---|--|-------|--|-----------------------|--|------------------|--|---|--|------------------|--|------------------|--|--------|--|---------|--|
| 1. | | 2. | | 3. | | 4. | | 5. | | 6. | | 7. | | 8. | | 9. | | D* | | 11. | |
| | | | | | | | | | | / design | | | | Report | | | | | | | |
| 3.2 | | Complete Pump Assembly | | Leak test | | Major | | Leakage testing | | 100% | | Mfg. Drawing, Approved Data Sheet | | No Leakage | | Report | | √ | | P W W | |
| 3.3 | | | | Strip Down Test (Not Required If Performance Test is Fine.) | | Major | | Visual | | 100% | | Mfg. Drawing, Approved Data Sheet | | | | Report | | √ | | P W W | |
| 3.4 | | Painting | | Dry Film Thickness/Paint shade | | Major | | Visual & Measurement | | 100% | | NTPC Approved Painting Schedule | | | | IR(Protocol) | | √ | | P V V | |
| 3.5 | | Packing | | Preservation | | Major | | Visual & Measurement | | 100% | | Technical Spec/ BHEL approved Packing Procedure/Drawing | | | | COC | | √ | | P V - | |
| 4.0 DOCUMENTATION | | | | | | | | | | | | | | | | | | | | | |
| 4.1 | | Check of Quality Assurance Documentation | | Compliance to MQP | | Major | | Check of Complement s | | 100% | | Manufacturing Quality Plan | | | | Protocol | | √ | | V V V | |

NOTE: 1. (\$) – 10 % of each type for NTPC (Customer).

| | | | | |
|--------------------------|--|---|---|---|
| Manufacturer Sign & Seal | Legend: * Record, identified with "tick" (√) under column 'D' shall be submitted to customer as a QA documentation package. M: Manufacturer / Sub supplier, C: Main Contractor/BHEL/BHEL AIA. N: NTPC P: Perform: witness, V: review of records, MA: Major and MI: Minor, DPT: Dye Penetrant Test, UT: Ultrasonic Testing TC: Test Certificate, IR: inspection report, MTC: Material Test Certificate. COC: Certificate of conformance. |  |  |  |
| | | Rakesh Kr Madhu (Dy Mgr / QA) | K Renjith (Mgr / QA) | R Arunachalam (DGM/QA) |
| | | Prepared by | Reviewed by | Approved by |

406124/2021/BAR-QA-MECH



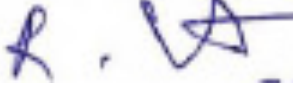
| | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|--|----------------------------|--|---------------------|--|-------------------------------|--|------------------|--|--------------------|--|------------------|--|------------------|--|--------|--|---------|--|
|  Ranipet | | MANUFACTURER'S NAME AND ADDRESS Customer Approved Source | | MANUFACTURING QUALITY PLAN | | | | | | | | | | | | | | | | | |
| | | | | ITEM: SLURRY PUMP | | | | PROJECT: AS PER PO | | | | | | | | | | | | | |
| | | | | SYSTEM: FGD APPLICATION | | | | BHEL WO : AS PER INTERNAL W/O | | | | | | | | | | | | | |
| | | | | QP NO. | | FGS:SLP:723, REV:00 | | DATE: 08.01.2021 | | MAIN CONTRACTOR | | M/S BHEL, RANIPET | | | | | | | | | |
| SL. NO | | COMPONENT & OPERATIONS | | CHARACTERISTICS | | CLASS | | TYPE OF CHECK | | QUANTUM OF CHECK | | REFERENCE DOCUMENT | | ACCEPTANCE NORMS | | FORMAT OF RECORD | | AGENCY | | REMARKS | |
| | | | | | | | | | | M C/N | | | | | | | | M C N | | | |
| 1. | | 2. | | 3. | | 4. | | 5. | | 6. | | 7. | | 8. | | 9. | | D* | | ** 10. | |
| | | | | | | | | | | | | | | | | | | | | | |

- All other items, which are not cover under this QP, shall be manufactured inspected as per OEM (Original equipment Manufacturer)/BHEL standard practice and relevant standard. Relevant TC/COC will be submitted for the same.
- This QP is applicable for Mandatory Spare supply also.
- Separate MQP to be submitted for Electric Motor.

| SI No | Types of Pumps | Quantity | No of Pumps as Per Approved Datasheet / GA Drawing |
|-------|--------------------------------------|----------|--|
| 01. | Limestone slurry feed Pump | 06 | |
| 02. | Gypsum bleed Pump | 06 | |
| 03. | Primary hydro cyclone feed tank Pump | 02 | |
| 04. | Filtrate water tank Pump | 02 | |
| 05. | Secondary hydrocyclone feed tank | 02 | |
| 06. | Waste water tank Pump | 04 | |
| 07. | Auxiliary absorbent tank Pump | 02 | |
| 08. | Emergency transfer Pump | 03 | |
| 09. | Absorber area drain sump Pump | 06 | |
| 10. | Gypsum area drain sump Pump | 02 | |
| 11. | Limestone area drain sump Pump | 02 | |

Record of revision

| Rev no | Date | Description |
|--------|------------|------------------------------------|
| 00 | 08.01.2021 | Original Issue – First submission. |

| | | | | |
|--------------------------|---|---|---|---|
| Manufacturer Sign & Seal | Legend: * Record, identified with "tick" (√) under column 'D' shall be submitted to customer as a QA documentation package. M : Manufacturer / Sub supplier, C : Main Contractor/BHEL/BHEL AIA. N : NTPC P : Perform: witness, V : review of records, MA : Major and MI : Minor, DPT : Dye Penetrant Test, UT : Ultrasonic Testing TC : Test Certificate, IR : inspection report, MTC : Material Test Certificate. COC : Certificate of conformance. |  |  |  |
| | | Rakesh Kr Madhu (Dy Mgr / QA) | K Renjith (Mgr / QA) | R Arunachalam (DGM/QA) |
| | | Prepared by | Reviewed by | Approved by |

| Annexure Q | | |
|------------|---|--|
| | Indent No: | Enquiry no: |
| Sl.No | BHEL / Customer Requirements | ##Specific confirmations by the manufacture(Acceptable/Not acceptable) |
| 1 | Quality Plan Requirement: (If SQP is not given & Vendor QP applicable) | |
| | (i) MQP (Manuafcutering Quality Plan) shall be submitted in attached format for BHEL/Customer review & approval. Our SQP/Typical MQP/ MQP Format is attached for guidance & use. | |
| | (ii) MQP shall invariably cover w.r.t Inward inspection including on Raw materail Procurement, In process and Final inspection in elaborated way/details. | |
| | (iii) Bidder shall also to give specific confirmation that on need basis, their competent officials shall visit to BHEL/customer for finalization of Quality plan including test procedure/methodology during preaward / post award approval / detailed engineering in the event of an order. | |
| | (iv) No deviation on BHEL/Customer approved MQP/ SQP (In case BHEL SQP is provided) is acceptable. | |
| | (v) Bidder shall agree to submit all cross referred documents other than codes/standrads to BHEL/Customer/Consultant. | |
| | Important Notes shall be included in MQP : (a) Latest revision of Standard s & Specification shall apply. Only International Standards are applicable. (b) Materials shall be procured in compliance to Functional Technical Specification. (c) Inspection shall be in compliance with Approved Quality Control Procedure for the Product. (d) NDT shall be carried out by Qualified Personnel with compliance to Approved NDT Procedures and Acceptance Norms, as per ASME Section V. (e) Gauges and measuring Instruments, with valid calibration only shall be used. (f) Cleaning and Painting of products shall be carried out as per Approved Painting Schedule. (g) Finished Products shall be packed to comply with Approved Packing Schedule. (h) Welding shall be carried out by Qualified Personnel with compliance to Approved NDT Procedures and Acceptance Norms, as per ASME Section V. | |
| 2 | Domestic / Inland Inspection will be carried out by BHEL/BHEL apointed Third Party Inspection Agency (TPIA) / Customer/Customer Apointed Inspection Agency/Consulatnat. This is applicable for all Stage inspection and Final Inspection identified as "W" - Witness or "CHP" - Customer Hold Point as per customer approved Quality Plan/ Technical specification / Approved Drawing/ Approved Data sheet / Scheme / PID / PFD / SLD (Process Instrumentaion Diagram / Process Flow Diagram / Single Line Diagram) etc (As applicable). | |
| 3 | Inspection Agency for Foreign Bidders and also for Indian Bidder but importing from Forgn Sources: (1) Any one of the following Third Party Inspection Agency (TPIA) shall be appointed by the bidder and same shall be furnished by the bidder in techno commercial bid itself. (2) The details of TPIA with contact details like Name of the official, Phone no, Email id shall also to be submitted during pre/post award. However cost for such inspection agency shall be borne by the bidder only. Inspection charges for such inspection agency shall be indicated separately so that if BHEL/Customer is undertaking the inspection by on their own , then these charges non claimable by the bidder. List of TPIA 1.M/s Bureau Veritas 2.M/s TUV-Nord 3.M/s TUV-SUD 4.M/s TUV Rheinland 5.M/s Lloyds Register 6.M/s SGS 7.M/s Germanischer Lloyd 8.M/s QUEST 9.M/s Certification Engineers International 10.M/s Intertek 11.M/s IR Class Systems and Solutions 12.M/s DNV 13. M/s Fichtner 14. M/s ABS Inspection Services | |

| Sl.No | BHEL / Customer Requirements | ##Specific confirmations by the manufacture(Acceptable/Not acceptable) |
|------------------------|---|--|
| 4 | Stage Inspection during manufacturing Process : Stage Inspection during manufacturing shall be carried out as per approved quality plan and all necessary documents shall be provided for review, verification and clearance for further processing. This inspection call shall be given well in advance (atleast 2 weeks before for Indian and 45 days for foreign) to TPI/Bidder's own inspection agency to avoid delay in the manufacturing processes. | |
| 5 | Inspection before despatch for domestic supplier : Inspection before despatch at supplier's works shall be carried out by Bidder appointed Inspection agency(As in SI no.3.) Inspection shall be done as per approved Quality plan/ Technical specification/ Approved Drawing/ Approved Data sheet . | |
| 6 | Inspection at Foreign Source/Supplier: (a) As in SI no: 3. shall be ensured without fail (b) No material / items shall be despatched without getting the written communication from BHEL / Customer inspection carried out by Bidder appointed Third Party Inspection Agency (As per SI no.3) / Customer/Customer Appointed Inspection Agency/Consulate. This is applicable for all Stage inspection and Final Inspection identified as "W" - Witness or "CHP" - Customer Hold Point as per customer approved Quality Plan/ Technical specification / Approved Drawing/ Approved Data sheet / Scheme / PID / PFD / SLD (Process Instrumentation Diagram / Process Flow Diagram / Single Line Diagram) etc (As applicable). Inspection before despatch for Foreign supplier : Inspection before despatch at supplier's works shall be carried out by bidder appointed inspection agencies having international presence at vendors and or vendor's sub vendor works. Inspection shall be done as per approved Quality plan/ Technical specification/ Approved Drawing/ Approved Data sheet by TPIA mentioned in SI no: 03 at supplier's cost. | |
| 7 | Painting shall be done strictly as per BHEL/Customer approved painting schedule / scheme only. Paint Thickness / Paint shade shall be ensured as per BHEL / Customer approved painting schedule / specification / data sheet etc. No deviation is acceptable unless otherwise accepted by BHEL/Customer in writing. Any conflict if any among BHEL / Customer approved painting schedule / Spec / data sheet etc shall be brought to the notice to BHEL well in advance before proceeding including the BOI being procured for assembly / skid like motors etc | |
| 8 | Specific confirmation for document package in the event of an order (2 Hard copies & soft copy in PDF file) is to be given containing the following with proper linkages (i) Index Sheet (ii) MQP/RQP/Endorsement Sheet (As applicable) (iii) TCs identified by BHEL/ Customer for record for "CHP" / "W" and Verification portion ("V") as given in approved QP. (iv) Final inspection report + TC including Chemical + Mechanical + HT + NDT etc (v) Third party Inspection report + TC (vi) Customer CHP/ MDCC (vii) Type test / Performance Test reports conducted (viii) Type test / Performance Test approval/ clearance obtained from BHEL/Customer (ix) BOM with As Built Drawings with actual make / rating used with BHEL/customer approved drawings. | |
| 9 | Packing / Seaworthy Packing shall be as per BHEL Packing schedule / approved drawing / sketch. This shall be ensured to take care of transit / handling / transshipment in Road / Sea / Air. Photographs are to be submitted for BHEL review before despatching the material as per contract conditions. | |
| 10 | Outsourcing of test facilities: Bidder shall ensure all the testing facilities in house. However If any of the test facilities are not available with successful bidder, then bidder shall ensure the same at NABL accredited third party lab / Govt / Govt Lab for major testing such as NDT, Electrical & Mechanical testing. | |
| 11 | Important Note: No deviation on the above requirement 01 to 10 is acceptable w.r.t Quality Requirement and those offers not meeting these specific customer requirement is liable for rejection and hence the bidder shall submit all the required documentary evidences in the offer itself. | |
| 12 | ## Necessarily to be filled up by the bidder at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirement being customer specific requirement. | |
| 13 | If the OEM/Principal engaging the services of an agent to participate on their behalf, Then mention OEM / vendor Name & address as well as agent details with their sign and seal. | |
| VENDOR SIGN AND STAMP: | | Vendor Name & Address: |

Details of BOI's/ Sub Systems with respect to Main Items

| SI No. | Item/ Sub system Name | Quantity | Supplier Name | Place of Manufacturing |
|--|-----------------------|----------|---------------|------------------------|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| OEM (ORIGINAL EQUIPMENT MANUFACTURER) SEAL AND SIGN. | | | | |

W.r.t INDIGENOUS OEM VENDORS ONLY

| SI no | Description & Quality Requirements | Specific confirmation by the vendor (Confirmed/Not Confirmed) |
|-------|---|---|
| 01 | OEM vendor shall meet all the requirements as in Annexure-I and also OEM Vendor shall endorse (Signature and Stamp in all the pages) in attached CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) Up to 200KW (DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 001 Rev No. 01 dt 14.08.2021) and send us the same to follow / ensure all the requirements in the event of an order. | |
| 02 | OEM vendor shall ensure Credentials of design and Manufacturing capabilities w.r.t. LT Motors by their LT Motor manufacture. | |
| 03 | OEM Supplier shall submit other details like that they are already approved vendor by Ultimate Customer – NTPC (National Thermal Power Corporation Limited) specifically for proposed supply of LT Motor against BHEL/Ranipet. The details of PO already executed preferably through various other BHEL units for any NTPC projects with CHP/MDCC including technical catalogue, PO received so far for similar supply of LT Motors may also be submitted. | |
| 04 | Accordingly OEM vendor shall be suitably informed that If Ultimate Customer – NTPC (National Thermal Power Corporation Limited) vendor approvals is not there /not available, then their offer will not be considered for further processing / ordering for the supply of LT Motors to take care of overall equipment/system requirements. | |
| 05 | No material shall be dispatched without BHEL/ Ultimate Customer – NTPC (National Thermal Power Corporation Limited) inspection - CHP/MDCC clearances. | |

(For INDIGENOUS OEM VENDOR ONLY)

| | | | |
|---|--|--|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 001 Rev NO.: 01 PAGE : Page 1 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements | ##Specific confirmations by the vendor |

ITEM: LT Motors (IE3) Up to 200KW

| | | | |
|-----------|-------------------------------|---|--|
| 01 | Type Test Requirements | A. Vendor shall submit the type test reports of all the type tests as listed in SL NO: 01 (D) below and carried out within 10 years from the data of ultimate NTPC bid opening dt 01.08.2018. These reports should be for the test conducted on the identical/similar LT Motors to those proposed to be supplied under this enquiry and test (s) either should have been conducted at an independent laboratory (or) should have been witnessed by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL (or) Ultimate client NTPC at respective LT Motor Manufacture of OEM vendor. | |
| | | B. However, if vendor is not able to submit the similar / identical type test report as per above condition (or) in the case of type test reports are not found to be meeting the specification requirement, the vendor shall conduct all the tests at no additional cost to BHEL either at third party lab (or) own lab in the presence of BHEL AIA (BHEL Appointed Inspection Agency) / BHEL /Ultimate client NTPC and submit the reports for review & approval. | |
| | | C. Type Test reports review and approval by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL / Ultimate client NTPC is must in line with NTPC approved data sheet / BOM/GA Drawing etc. | |
| | | D. The following Type test reports to be submitted covering the following for above 50KW LT Motor as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc i. Measuring of resistance of winding of stator and wound rotor (if applicable) ii. No load test at rated voltage to determine input current, power and speed. iii. Open circuit voltage ratio of wound rotor motor (in case slip ring motors) iv. Full load test to determine efficiency power factor and slip v. Temperature rise test. vi. Momentary excess load test vii. High voltage test viii. Test for vibration severity of motor ix. Test of noise levels of motor (Noise level for all the motors shall be limited to 85dB(A) except for BFP motor for which the maximum limit shall be 90dB(A).) x. Over speed test xi. Degree of Protection Tests (Minimum Ingress Protection - IP 55). xii. Type test reports for motors located in fuel oil area having flame proof enclosures as per BIS 2148/ IEC 60079-1 | |

(For INDIGENOUS OEM VENDOR ONLY)

| | | | | | | | |
|---|---|---|--|--|--|---|--|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 001 Rev NO.: 01 PAGE : Page 2 of 6 DATE: 14.08.2021 | | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: | |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements | | | | ##Specific confirmations by the vendor | |
| <u>ITEM: LT Motors (IE3) Up to 200KW</u> | | | | | | | |
| 01 | Type Test RequirementContd | E. The TCs / Type Test reports shall also be given as PDF file with index sheet & page control through Email & Soft Copy (File size to less than 9MB). | | | | | |
| 02 | Quality Plan Requirement | <ol style="list-style-type: none"> 1. RQP or MQP is applicable for these LT Motor. 2. RQP/MQP (Manufacturing Quality Plan) is applicable for these LT Motors and accordingly Actual LT Motor Manufacture and OEM shall submit the RQP/MQP in ultimate customer – NTPC format. 3. If any of LT Motor manufacture is having, ultimate customer NTPC approved MQP (Manufacturing Quality Plan) / RQP (Reference Quality Plan) and having validity, the same is applicable for these LT Motor for inspection subject to obtaining ultimate customer NTPC formal approval in the event of an order through endorsement sheet approval route as in sl no: 4 below 4. Accordingly, LT Motor Manufacture & OEM supplier shall submit the filled up Endorsement sheet (copy attached) with ultimate customer approved MQP/RQP with signature & seal in the event of a Purchase Order from BHEL. 5. If LT Motor Manufacture / OEM vendor does not have MQP/RQP, they should submit a fresh MQP to BHEL/NTPC (in NTPC format) for review & approval. (copy attached). | | | | | |

(For INDIGENOUS OEM VENDOR ONLY)

| | | | | | |
|---|--|---|--|--|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 001 Rev NO.: 01 PAGE : Page 3 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements | | | ##Specific confirmations by the vendor |
| <u>ITEM: LT Motors (IE3) Up to 200KW</u> | | | | | |
| 03 | BHEL / Ultimate Customer – NTPC approved vendors | LT Motors are to be procured only from following Ultimate Customer - NTPC approved vendors and no deviation on this specific requirement is acceptable. <ul style="list-style-type: none"> ➤ KEC / Bengaluru (Up to 200KW) & Hubli (Up to 90KW) ➤ CGL/Ahmednagar (Up to 200KW) ➤ SIEMENS/Mumbai (Up to 200KW) ➤ ABB/Faridabad (Up to 55KW) and Bengaluru (Up to 200KW) ➤ BBL/Mumbai (Up to 200KW) ➤ NGEF/ Bengaluru (Up to 15KW) ➤ Marathon / Kolkatta (Up to 200KW) ➤ Jyothi / Vadodara (Up to 200KW) ➤ Laximi Hydraulics Private Limited (LHPL) / Solapur (Up to 200KW) | | | |
| 04 | Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor | <u>LT Motors up to 30KW – Inspection Categorization: III</u> All Routine tests on LT Motors are to be ensured by OEM Vendor & same are to be inspected & witnessed by OEM Vendor / BHEL / BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works as per approved MQP & approved data sheet / drg / spec/ as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc and all the Routine Test Reports with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – NTPC for review and to obtain inspection and dispatch clearance . LT Motor Manufacturer has to issue COC (Certificate of Conformance) states that the above motor/ motors was manufactured taking care of Customer specific requirements regarding ambient temp., voltage and frequency variation, hot starts, pull out torque, starting KVA/KW, temp. rise, distance between centre of stud and gland plate, space heater and tested in accordance with approved drawing/data sheets | | | |

(For INDIGENOUS OEM VENDOR ONLY)

| | | | |
|---|--|--|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 001 Rev NO.: 01 PAGE : Page 4 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements | ##Specific confirmations by the vendor |

ITEM: LT Motors (IE3) Up to 200KW

| | | | |
|----|---|---|--|
| 04 | Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor..... Contd | <u>LT Motors (30KW to 50KW) – Inspection Categorization: II</u> All Routine Tests on LT Motors are to be ensured by OEM vendor & witnessed by BHEL/BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works including review of Type Test Reports and Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet/drg/spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc and all the Routine Test Reports with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – NTPC for review and to obtain inspection and dispatch clearance . | |
| | | <u>Above 50KW and up to 200KW – Inspection Categorization: I</u> All Routine & Type Tests if any on LT Motors are to be ensured by OEM Vendor and same shall be offered to BHEL/ BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-NTPC for inspection & witnessing including review of Degree of Protection Test Reports as per approved MQP /RQP with endorsement sheet / approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc and all the Routine Test Reports , Type test Reports including Degree of protection test report with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – NTPC for review and to obtain inspection and dispatch clearance. | |
| | | BHEL/ BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-NTPC to witness / perform inspection at LT Motor Supplier works and submit all the inspection documents and routine & Type test reports including Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 /IEC 60034 etc. | |
| | | No material shall be dispatched without BHEL / BHEL AIA and Ultimate Customer – NTPC Inspection and dispatch clearance. | |
| 05 | Painting Requirements | Painting requirement like paint shade and painting thickness including no of coats if any are to be ensured by the OEM vendor for these LT Motors as per BHEL/ Ultimate Customer -NTPC approved data sheet/drg/spec (As applicable). | |
| 06 | Packing | Packing shall be as per Specification / Drg. / Data sheet including sea worthy packing if any to avoid any transit & handling damages . | |
| 07 | For Inspection call | Inspection call by OEM Vendor for LT Motor inspection at Actual LT Motor Manufacture works to be raised for BHEL/BHEL AIA inspection / Ultimate Customer – NTPC including for type test witnessing if any to | |

(For INDIGENOUS OEM VENDOR ONLY)

| | | | | | |
|---|-----------------------------------|--|--|--|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 001 Rev NO.: 01 PAGE : Page 5 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements | | | ##Specific confirmations by the vendor |
| <u>ITEM: LT Motors (IE3) Up to 200KW</u> | | | | | |
| | | be ensured / addressed to Mr R Kesavan., DGM (QC-Proc), Mobile no: +91 9443006303., Email id: kesavan@bhel.in and Mr Kovarathanan., DM (QC-Proc), Mobile no: +91 8903502628., Email id: kovak@bhel.in including for inspection related activities for immediate response / resolution. | | | |
| 08 | Document Package / Dossier | Specific confirmation for Document Package in the event of an order (3 hard copies + soft copies in PDF file) is to be given containing the following with proper linkages (.) (i) Index Sheet (ii) MQP/RQP/Endorsement sheet (iii) TCs identified by BHEL/NTPC for record for "CHP" (Customer Hold Point) Verification & Witness "W" portion as given in MQP / RQP / MQP (as applicable). (iv) Final Inspection Report + TC (v) BHEL AIA (BHEL Appointed Inspection Agency) / BHEL report + TC (vi) Ultimate customer NTPC (National Thermal Power Corporation) CHP (Customer Hold Point) / MDCC (Material Dispatch Clearance Certificate) (vii) Type test reports conducted/submitted with approval with approved data sheet and BOM with actual make used with Customer approved drgs. | | | |
| 09 | Important notes | <u>Inspection Categorization: I</u> Inspection by BHEL/BHEL AIA and also by Ultimate Customer – NTPC based on MQP/RQP approved and as in sl no:04 <u>Inspection Categorization: II</u> Inspection by Main contractor (BHEL) / BHEL AIA based on Ultimate Customer – NTPC approved MQP/RQP & based on inspection as in sl no:04 <u>Inspection Categorization: III</u> COC by Main contractor (BHEL) to Ultimate Customer – NTPC based on inspection as in sl no:04. | | | |
| | | Any cost implication for conducting checks / tests including for witnessing of any of the tests at Actual LT Motor Manufacture Works by BHEL / BHEL AIA / Ultimate Customer – NTPC is in the scope of OEM Supplier only and no extra cost if any will be admissible in the event of an order and also during execution of the contract. | | | |

(For INDIGENOUS OEM VENDOR ONLY)

| | | | | | | | |
|---|--------------------|--|--|--|--|---|--|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 001 Rev NO.: 01 PAGE : Page 6 of 6 DATE: 14.08.2021 | | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: | |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements | | | | ##Specific confirmations by the vendor | |

ITEM: LT Motors (IE3) Up to 200KW


| 10 | Motor details | | | | |
|----|---|--|----------------|----------|---------------|
| | Vendor shall furnish following Motor details for the Pumps applicable for this enquiry. | | | | |
| | NTPC Nabinagar 3 x 660 MW – FGD Project:- | | | | |
| | S. No | Pump | LT Motor | | |
| | | | Rating (in kW) | Quantity | Proposed Make |
| | 1 | Limestone Slurry Feed Pump | | | |
| | 2 | Gypsum Bleed Pump | | | |
| | 3 | Primary Hydro-cyclone Feed Tank Pump | | | |
| | 4 | Filtrate Water Tank Pump | | | |
| | 5 | Secondary Hydro-cyclone Feed Tank Pump | | | |
| | 6 | Waste Water Tank Pump | | | |
| | 7 | Auxiliary Absorbent Tank Pump | | | |
| | 8 | Emergency Transfer Pump | | | |
| | 9 | Absorber Area Drain Sump Pump | | | |
| 10 | Gypsum Area Drain Sump Pump | | | | |
| 11 | Limestone Area Drain Sump Pump | | | | |
| 12 | Other LT motors involved in the system (if any) | | | | |

OEM Supplier signature with seal

Necessarily to be filled up & submitted by the OEM vendor at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirements against LT Motors being BHEL/ ultimate customer – NTPC (National Thermal Power Corporation Limited) specific requirements.

421645/2021/BAP-QA_MECH

ENDORSEMENT SHEET FOR QP
REFERENCE / STANDARD / FIELD QUALITY PLAN (RQP / SQP/RFQP/SFQP)

| | | | |
|--|---|---|---|
| TO BE FILLED IN BY SUPPLIER AT TIME OF SUBMISSION | |  | To be filled in by NTPC |
| PROJECT NAME | NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | | <u>2REVIEW & ENDORSEMENT BY NTPC</u> PROJECT SPECIFIC QP NUMBER ALLOTTED QP NO: REV. NO.: 00 DT : |
| CONTRACT NO.: | CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW | | |
| MAIN SUPPLIER | M/S.BHEL, RANIPET , TAMIL NADU., INDIA | | |
| MANUFACTURER WORKS & ADDRESS | (TO BE FILLED BY OEM / LT MOTOR SUPPLIER) | | |
| ITEM /EQUIPMENT / SYSTEM/ SUB-SYSTEM DETAILS i.e. MODEL TYPE/SIZE/RATING etc. | LT MOTOR(IE3) - SLURRY PUMPS FOR FGD APPLICATION | | |
| APPROVED QP NO.: RQP/SQP/RFQP/SFQP | (TO BE FILLED BY OEM / LT MOTOR SUPPLIER) | | |
| <i>Confirmation by Main Supplier (TICK WHICHEVER APPLICABLE)</i> | | | <i>(TICK APPLICABLE)</i> |
| I. That the item/ component is identical to that considered for SQP approval. ✓ | | | The MQP/RQP/SQP is endorsed for this project without any change The SQP is endorsed for this project with changes as indicated. |
| II. That there are minor changes in the item/ component with respect to that considered for MQP/RQP/SQP approval, however the same do not affect the contents of MQP/RQP/SQP | | | |
| III. That there are minor changes in the item/ component with respect to that considered for MQP/RQP/SQP approval, however the same affect the MQP/RQP/SQP slightly, as indicated below / in attached sheet. | | | |
| | | | <u>DISTRIBUTION OF ENDORSEMENT OF</u> A) MQP/RQP/SQP: 1. MAIN SUPPLIER (WITH A COPY OF MQP/RQP/SQP) 2. MANUFACTURER 3. RIO 4. CQA-SPL 5. CQA-O/C B) RFQP/SFQP: 1. MAIN SUPPLIER (with a copy of MQP/RQP/SQP) 2. MANUFACTURER 3. NTPC FQA (with a copy of MQP/RQP/SQP) 4. NTPC Erection (with a copy of MQP/RQP/SQP) 5. CQA-SPL 6. CQA-O/C |
| SIGN.: (Main Supplier) DATE: | | SIGN.: (Manufacturer) DATE: | |
| | | NTPC (Reviewed /Approved by/ Date & Seal) | |

421645/2021/BAP-QA-MECH

| OEM SUPPLIER WITH OEM MFGR.'s LOGO (TO BE FILLED BY OEM SUPPLIER) | | LT MOTOR MANUFACTURER'S NAME AND ADDRESS (TO BE FILLED BY OEM / LT MOTOR MANUFACTURE) | MANUFACTURING QUALITY PLAN | | | | | | PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) FGD PACKAGE NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (TO BE FILLED BY OEM SUPPLIER) | | | | | |
|--|------------------------|--|---|---------------|------------------|---|--------------------|------------------|--|----|--------|---|---|---------|
| | | | ITEM: LT MOTOR(IE3) UP TO 200KW FOR FGD APPLICATION SUB-SYSTEM: FGD - SLURRY PUMPS | | | QP NO.: SLURRY PUMPS :LT MOTOR:001 REV.NO.: 00 DATE: PAGE: OF.... | | | | | | | | |
| SL. NO | COMPONENT & OPERATIONS | CHARACTERISTICS | CLASS | TYPE OF CHECK | QUANTUM OF CHECK | | REFERENCE DOCUMENT | ACCEPTANCE NORMS | FORMAT OF RECORD | | AGENCY | | | REMARKS |
| 1. | 2. | 3. | 4. | 5. | M | C/N | 7. | 8. | 9. | D* | M | C | N | 11. |
| | | | | | | | | | | | | | | |

| | | | | | | |
|--|--|---|-----------------------------|--|--------------------------|--------------------|
| | | LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: OEM MANUFACTURER/LT MOTOR SUB-SUPPLIER C: MAIN SUPPLIER – BHEL/BHEL AIA , N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFIED IN COLUM "N" AS 'W' | DOC. NO.: | | REV..... CAT..... | |
| OEM MANUFACTURER/ LT MOTOR SUPPLIER | | | MAIN (BHEL) SUPPLIER | | | |
| SIGNATURE | | | FOR NTPC USE | | REVIEWED BY | APPROVED BY |

FORMAT NO.: QS-01-QAI-P-09/F1-R1

1/1

ENGG. DIV./QA&I



W.r.t FOREIGN OEM VENDORS ONLY

| SI no | Description & Quality Requirements | Specific confirmation by the vendor (Confirmed/Not Confirmed) |
|-------|---|---|
| 01 | OEM vendor shall meet all the requirements as in Annexure-II and also OEM Vendor shall endorse (Signature and Stamp in all the pages) in attached CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) Up to 200KW (DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 002 Rev No. 01 dt 14.08.2021) and send us the same to follow / ensure all the requirements in the event of an order. | |
| 02 | OEM vendor shall ensure Credentials of design and Manufacturing capabilities w.r.t. LT Motors by their LT Motor manufacture. | |
| 03 | OEM Supplier shall submit other details like that they are already approved vendor by Ultimate Customer – NTPC (National Thermal Power Corporation Limited) specifically for proposed supply of LT Motor against BHEL/Ranipet. The details of PO already executed preferably through various other BHEL units for any NTPC projects with CHP/MDCC including technical catalogue, PO received so far for similar supply of LT Motors may also be submitted. | |
| 04 | Accordingly OEM vendor shall be suitably informed that If Ultimate Customer – NTPC (National Thermal Power Corporation Limited) vendor approvals is not there /not available, then their offer will not be considered for further processing / ordering for the supply of LT Motors to take care of overall equipment/system requirements. | |
| 05 | No material shall be dispatched without BHEL/ Ultimate Customer – NTPC (National Thermal Power Corporation Limited) inspection - CHP/MDCC clearances. | |

(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)

| | | | |
|---|--|--|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 002 Rev NO.: 01 PAGE : Page 1 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation),, India Quality Requirements | ##Specific confirmations by the vendor |

ITEM: LT Motors(IE3) - Up to 200KW

| | | | |
|----|-------------------------------|---|--|
| 01 | Type Test Requirements | A. Vendor shall submit the type test reports of all the type tests as listed in SL NO: 01 (D) below and carried out within 10 years from the data of ultimate Customer NTPC bid opening dt 01.08.2018. These reports should be for the test conducted on the identical/similar LT Motors to those proposed to be supplied under this enquiry and test (s) either should have been conducted at an independent laboratory (or) should have been witnessed by BHEL/BHEL AIA (BHEL Appointed Inspection Agency) (or) Ultimate customer NTPC (National Thermal Power Corporation) at respective LT Motor Manufacture of OEM vendor. | |
| | | B. However, if vendor is not able to submit the similar / identical type test report as per above condition in 01 (A) (or) in the case of type test reports are not found to be meeting the specification requirement and not acceptable to BHEL/BHEL AIA/ Ultimate Customer – NTPC , , the vendor shall conduct all these tests at no additional cost if any to BHEL either at reputed third party lab (or) Government approved lab (or) own lab in the presence of BHEL AIA (BHEL Appointed Inspection Agency) / BHEL /Ultimate client NTPC and submit the reports for BHEL / Ultimate Customer – NTPC review & approval. | |
| | | C. Type Test reports review and approval by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL / Ultimate client NTPC is must in line with NTPC approved data sheet / BOM (Bill of Material) /GA (General Arrangement) Drawing etc. | |

(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)

| | | | | |
|---|--------------------|--|---|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 002 Rev NO.: 01 PAGE : Page 2 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation),, India Quality Requirements | | ##Specific confirmations by the vendor |

ITEM: LT Motors(IE3) - Up to 200KW

| | | | |
|----|---|---|--|
| 01 | Type Test Requirement(Contd) | D. The following Type test reports to be submitted covering the following for above 50KW LT Motor as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc i. Measuring of resistance of winding of stator and wound rotor (if applicable) ii. No load test at rated voltage to determine input current, power and speed. iii. Open circuit voltage ratio of wound rotor motor (in case slip ring motors) iv. Full load test to determine efficiency power factor and slip v. Temperature rise test. vi. Momentary excess /over load test vii. High voltage test viii. Test for vibration severity of motor ix. Test of noise levels of motor (Noise level for all the motors shall be limited to 85dB(A) except for BFP motor for which the maximum limit shall be 90dB(A).) x. Over speed test xi. Degree of Protection Tests (Minimum Ingress Protection - IP 55). xii. Type test reports for motors located in fuel oil area having flame proof enclosures as per BIS 2148/ IEC 60079-1 | |
| | | E. The TCs/Test reports shall also be given as PDF file with index sheet & page control through Email & Soft Copy (File size to less than 9MB). | |
| 02 | Quality Plan Requirement | a. MQP (Manufacturing Quality Plan) is applicable for these LT Motors and accordingly Actual LT Motor Manufacture shall submit the MQP in ultimate customer – NTPC format for review and approval by BHEL / Ultimate Customer - NTPC. | |
| | | b. If any of LT Motor manufacture is having, ultimate customer NTPC approved MQP (Manufacturing Quality Plan) and having validity, the same is applicable for these LT Motor for inspection purposes subject to obtaining ultimate customer NTPC formal approval in the event of an order through endorsement sheet approval route as in sl no: 01 (c) below | |
| | | c. Accordingly, LT Motor Manufacture & OEM supplier shall submit the filled up Endorsement sheet (copy attached) with ultimate customer approved MQP with signature & seal in the event of a Purchase Order from BHEL for BHEL/Ultimate Customer – NTPC review and approval. | |

(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)

| | | | |
|---|--|--|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 002 Rev NO.: 01 PAGE : Page 3 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements | ##Specific confirmations by the vendor |

ITEM: LT Motors(IE3) - Up to 200KW

| | | | |
|----|--|---|--|
| 02 | Quality Plan Requirement ...contd | d. If LT Motor Manufacture / OEM vendor does not have MQP, they should submit a fresh MQP to BHEL/NTPC (in NTPC format) for review & approval. (copy attached). | |
| | | e. Typical Indicative MQP is attached for inf and & guidance purposes only and it is not final and binding on BHEL / Ultimate Customer NTPC. | |
| 03 | Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor | a. All LT Motors are to be inspected by BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works as per approved MQP & approved data sheet/drg/spec/ as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc by BHEL / Ultimate Customer-NTPC | |
| | | b. All Routine Tests are to be witnessed by BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works as per approved MQP & approved data sheet/drg/spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc by BHEL / Ultimate Customer-NTPC | |
| | | c. BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-NTPC will also ensure LT Motor type tests reports review including Degree of Protection Test Reports & acceptance as per approved MQP & approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc. | |
| | | d. BHEL AIA (BHEL authorized inspection Agency)) / Ultimate Customer-NTPC to witness / perform inspection at LT Motor Supplier works and submit all the inspection documents and routine & Type test reports including Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc. | |

(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)

| | | | |
|---|--|--|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 002 Rev NO.: 01 PAGE : Page 4 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation),, India Quality Requirements | ##Specific confirmations by the vendor |

ITEM: LT Motors(IE3) - Up to 200KW

| | | | |
|----|--|--|--|
| 03 | Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor...contd | <u>LT Motors up to 30KW – Inspection Categorization: III</u> All Routine tests on LT Motors are to be ensured by OEM Vendor & same are to be inspected & witnessed by OEM Vendor / BHEL / BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works as per approved MQP & approved data sheet /drg / spec/ as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc and all the Routine Test Reports with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – NTPC for review and to obtain inspection and dispatch clearance. LT Motor Manufacturer has to issue COC (Certificate of Conformance) states that the above motor/ motors was manufactured taking care of Customer specific requirements regarding ambient temp., voltage and frequency variation, hot starts, pull out torque, starting KVA/KW, temp. rise, distance between centre of stud and gland plate, space heater and tested in accordance with approved drawing/data sheets | |
| | | <u>LT Motors (30KW to 50KW) – Inspection Categorization: II</u> All Routine Tests on LT Motors are to be ensured by OEM vendor & same are to be inspected & witnessed by BHEL / BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works including review of Type Test Reports and Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet/drg/spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc and all the Routine Test Reports with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – NTPC for review and to obtain inspection and dispatch clearance . | |
| | | <u>Above 50KW and up to 200KW – Inspection Categorization: I</u> All Routine & Type Tests if any on LT Motors are to be ensured by OEM Vendor at Actual LT Motor Manufacture Works and same shall be offered to BHEL/ BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-NTPC for inspection & witnessing including review of Degree of Protection Test Reports as per approved MQP /RQP (Reference Quality Plan with endorsement sheet approved) / approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IEC 60034 etc and all the Routine Test Reports with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – NTPC review and to obtain inspection and dispatch clearance. | |

(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)

| | | | |
|---|--|--|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 002 Rev NO.: 01 PAGE : Page 5 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
|---|--|--|---|

| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation)., India Quality Requirements | ##Specific confirmations by the vendor |
|---------|-------------|---|--|
|---------|-------------|---|--|

ITEM: LT Motors(IE3) - Up to 200KW

| | | | |
|----|--|--|--|
| 03 | Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor...contd | <p>All the checks / tests /review of documents / inspection & witnessing at LT Motor Manufacture by OEM /BHEL / BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-NTPC are under OEM scope and any cost implication arising out of due to conducting checks / tests including for witnessing of any of the tests at Actual LT Motor Manufacture Works (or) at third party etc by BHEL / BHEL AIA / Ultimate Customer – NTPC are in the scope of OEM Supplier only.</p> <p>As such No extra cost if any will be admissible and paid in the event of an order and also during execution of the contract.</p> <p>No material shall be dispatched without BHEL / BHEL AIA and Ultimate Customer – NTPC Inspection and dispatch clearance.</p> | |
| 04 | Painting Requirements | Painting requirement like paint shade and painting thickness including no of coats if any are to be ensured by the OEM vendor for these LT Motors as per BHEL/ Ultimate Customer -NTPC approved data sheet/drg/spec (As applicable) | |
| 05 | Packing | Packing shall be as per Specification / Drg. / Data sheet including sea worthy packing if any to avoid any transit & handling damages | |
| 06 | For Inspection call | Inspection call by OEM Vendor for LT Motor inspection at Actual LT Motor Manufacture works to be raised for BHEL/BHEL AIA inspection/ Ultimate Customer – NTPC including for type test witnessing if any to be ensured / addressed to Mr R Kesavan., DGM (QC-Proc)., Mobile no: +91 9443006303., Email id: kesavan@bhel.in and Mr Kovarathanan., DM (QC-Proc)., Mobile no: +91 8903502628., Email id: kovak@bhel.in including for inspection related activities for immediate response / resolution. | |
| 07 | Document Package / Dossier | <p>Specific confirmation for Document Package in the event of an order (3 hard copies + soft copies in Pdf file) is to be given containing the following with proper linkages (.)</p> <ul style="list-style-type: none"> (i) Index Sheet (ii) MQP/RQP/Endorsement sheet (iii) TCs identified by BHEL/NTPC for record for “CHP” (Customer Hold Point) Verification & Witness “W” portion as given in MQP / RQP / MQP (as applicable). (iv) Final Inspection Report + TC (v) BHEL AIA (BHEL Appointed Inspection Agency) / BHEL report + TC (vi) Ultimate customer NTPC (National Thermal Power Corporation) | |

421657/2021/BAP-QA_MECH

Annexure-II**CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) Up to 200KW****(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)**

| | | | |
|--|--|---|---|
| PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR) | CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS(IE3) - Up to 200KW NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | DOC.NO: BAP/QR/ G609 to G611/Nabinagar/ LTM/ Slurry Pumps: 002 Rev NO.: 01 PAGE : Page 6 of 6 DATE: 14.08.2021 | ##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id: |
|--|--|---|---|

| Sl. NO. | DESCRIPTION | BHEL and Ultimate Customer - NTPC (National Thermal Power Corporation), India Quality Requirements | ##Specific confirmations by the vendor |
|---------|-------------|--|--|
|---------|-------------|--|--|

ITEM: LT Motors(IE3) - Up to 200KW

| | | | |
|----|-----------------|--|--|
| | | CHP (Customer Hold Point) / MDCC (Material Dispatch Clearance Certificate) (vii) Type test reports conducted/submitted with approval with approved data sheet and BOM with actual make used with Customer approved drgs. | |
| 08 | Important notes | <u>Inspection Categorization: I</u> Inspection by BHEL/BHEL AIA and also by Ultimate Customer – NTPC based on MQP/RQP approved and as in sl no:03 <u>Inspection Categorization: II</u> Inspection by Main contractor (BHEL) / BHEL AIA based on Ultimate Customer – NTPC approved MQP/RQP & based on inspection as in sl no:03 <u>Inspection Categorization: III</u> COC by Main contractor (BHEL) to Ultimate Customer – NTPC based on inspection as in sl no:03 | |
| | | Any cost implication for conducting checks / tests including for witnessing of any of the tests at Actual LT Motor Manufacture Works by BHEL / BHEL AIA / Ultimate Customer – NTPC is in the scope of OEM Supplier only and no extra cost if any will be admissible in the event of an order and also during execution of the contract. | |

09

Motor details

Vendor shall furnish following Motor details for the Pumps applicable for this enquiry.

NTPC Nabinagar 3 x 660 MW – FGD Project:-


| S. No | Pump | LT Motor | | |
|-------|---|----------------|----------|-------------------------------------|
| | | Rating (in kW) | Quantity | Proposed Make and Country of origin |
| 1 | Limestone Slurry Feed Pump | | | |
| 2 | Gypsum Bleed Pump | | | |
| 3 | Primary Hydro-cyclone Feed Tank Pump | | | |
| 4 | Filtrate Water Tank Pump | | | |
| 5 | Secondary Hydro-cyclone Feed Tank Pump | | | |
| 6 | Waste Water Tank Pump | | | |
| 7 | Auxiliary Absorbent Tank Pump | | | |
| 8 | Emergency Transfer Pump | | | |
| 9 | Absorber Area Drain Sump Pump | | | |
| 10 | Gypsum Area Drain Sump Pump | | | |
| 11 | Limestone Area Drain Sump Pump | | | |
| 12 | Other LT motors involved in the svstem (if any) | | | |

OEM Supplier signature with seal

Necessarily to be filled up & submitted by the OEM vendor at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirements against LT Motors being BHEL/ ultimate customer – NTPC (National Thermal Power Corporation Limited) specific requirements.

421657/2021/BAP-QA_MECH

ENDORSEMENT SHEET FOR QP
REFERENCE / STANDARD / FIELD QUALITY PLAN (RQP / SQP/RFQP/SFQP)

| | | | |
|--|---|---|---|
| TO BE FILLED IN BY SUPPLIER AT TIME OF SUBMISSION | |  | To be filled in by NTPC |
| PROJECT NAME | NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) | | <u>2REVIEW & ENDORSEMENT BY NTPC</u> PROJECT SPECIFIC QP NUMBER ALLOTTED QP NO: REV. NO.: 00 DT : |
| CONTRACT NO.: | CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW | | |
| MAIN SUPPLIER | M/S.BHEL, RANIPET , TAMIL NADU., INDIA | | |
| MANUFACTURER WORKS & ADDRESS | (TO BE FILLED BY OEM / LT MOTOR SUPPLIER) | | |
| ITEM /EQUIPMENT / SYSTEM/ SUB-SYSTEM DETAILS i.e. MODEL TYPE/SIZE/RATING etc. | LT MOTOR(IE3) - SLURRY PUMPS FOR FGD APPLICATION | | |
| APPROVED QP NO.: RQP/SQP/RFQP/SFQP | (TO BE FILLED BY OEM / LT MOTOR SUPPLIER) | | |
| Confirmation by Main Supplier (TICK WHICHEVER APPLICABLE) | | | (TICK APPLICABLE) |
| I. That the item/ component is identical to that considered for SQP approval. ✓ | | | The MQP/RQP/SQP is endorsed for this project without any change The SQP is endorsed for this project with changes as indicated. |
| II. That there are minor changes in the item/ component with respect to that considered for MQP/RQP/SQP approval, however the same do not affect the contents of MQP/RQP/SQP | | | |
| III. That there are minor changes in the item/ component with respect to that considered for MQP/RQP/SQP approval, however the same affect the MQP/RQP/SQP slightly, as indicated below / in attached sheet. | | | |
| | | | <u>DISTRIBUTION OF ENDORSEMENT OF</u> A) MQP/RQP/SQP: 1. MAIN SUPPLIER (WITH A COPY OF MQP/RQP/SQP) 2. MANUFACTURER 3. RIO 4. CQA-SPL 5. CQA-O/C B) RFQP/SFQP: 1. MAIN SUPPLIER (with a copy of MQP/RQP/SQP) 2. MANUFACTURER 3. NTPC FQA (with a copy of MQP/RQP/SQP) 4. NTPC Erection (with a copy of MQP/RQP/SQP) 5. CQA-SPL 6. CQA-O/C |
| SIGN.: (Main Supplier) DATE: | | SIGN.: (Manufacturer) DATE: | |
| (TO BE FILLED BY OEM / LT MOTOR SUPPLIER) | | | NTPC (Reviewed /Approved by/ Date & Seal) |

421657/2021/BAP-QA_MECH

| BHEL BAP/ RANIPET / TAMIL NADU INDIA | | OEM SUPPLIER To be filled by OEM Supplier | | MANUFACTURING QUALITY PLAN FOR LT MOTOR (Up to TO 200KW) - FGD Application | | | | | MQP:E:LTM:NABINAGAR :FGD SLURRY :001 | | | |
|---|---|--|-------|--|-------------------|--|------------------------------------|--------------------------|---|-----|---------------|----------------------|
| | | LT MOTOR Manufacture To be filled by OEM Supplier | | | | | | | REV:NO:00 | | | |
| | | DATE: 17.07.2020 | | | | | | | | | | |
| | | Page : | | | | | | | | | | |
| S1.No. | COMPONENT/ASSEMBLY/OPERATION/TESTS | CHARACTERISTIC | CLASS | TYPE OF CHECK | QUANTITY OF CHECK | REFERENCE DOCUMENT | ACCEPTANCE STANDARD | FORMAT OF REC | D | M | BHEL/BHEL AIA | REMARKS |
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | | 12. |
| INCOMING INSPECTIONS: | | | | | | | | | | | | |
| 1.1 | Enamelled round copper conductor(Dual coated)MM | 1.Overall diameter | Major | Mechanical | 1 sample/lot | IS 13730 1993 Part 13 / IEC 60317-0-1-2008 (As applicable) | IEC 60317-0-1 2008 | Plant format | | P | V | |
| | | 2.Bare conductor diameter | Major | Mechanical | 1 sample/lot | BHEL / NTPC Spec & Apprd Datasheet | BHEL / NTPC Spec & Apprd Datasheet | Plant format | | P | V | |
| | | 3.BDV test | Major | Electrical | 1 sample/lot | --do-- | --do-- | Plant format | | P | V | |
| | | 4.Elongation | Major | Mechanical | 1 sample/lot | --do-- | --do-- | Plant format | | P | V | |
| | | 5.Continuity (insulation) | Major | Electrical | 1 sample/lot | --do-- | --do-- | Insp report/ Supplier TC | | P | V | |
| | | 6.Tan Delta (If applicable) | Major | Electrical | 1 sample/lot | --do-- | --do-- | Insp report/ Supplier TC | | P | V | |
| 1.2 | Aluminum Ingots | 1.Chemical composition | Major | Chemical | 1 sample/lot | --do-- | --do-- | Supplier Tc | | P | V | EC gr purity: -99.6% |
| 1.3 | FAN | 1.Diameter (ID&OD) | Major | Mechanical | 1 sample/lot | --do-- | --do-- | Inspection Report | | P | V | |
| 1.4 | Bearings (SKF OR FAG) | 1.Type & Make | Major | Visual | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| | | 2.Dimensions - ID,OD&width | Major | Mechanical | 1 sample/lot | --do-- | --do-- | Inspection Record | | P | V | |
| 1.5 | Terminal Block | 1.Dimensions | Major | Mechanical | Plant std. | --do-- | --do-- | Inspection Report | | P | V | |
| | | 2.Proof voltage test | Major | Electrical | Plant std. | --do-- | --do-- | Inspection Report | | P | V | |

421657/2021/BAP-QA_MECH

| BHEL BAP/ RANIPET / TAMIL NADU INDIA | | OEM SUPPLIER To be filled by OEM Supplier | | MANUFACTURING QUALITY PLAN FOR LT MOTOR (Up to TO 200KW) - FGD Application | | | | | MQP:E:LTM:NABINAGAR :FGD SLURRY :001 | | | |
|---|------------------------------------|--|-------|--|-------------------|--------------------|---------------------|-------------------|---|--------|-----|---------|
| | | LT MOTOR Manufacture | | | | | | | REV:NO:00 | | | |
| | | To be filled by OEM Supplier | | | | | | | DATE: 17.07.2020 | | | |
| | | Page : | | | | | | | | | | |
| S1.No. | COMPONENT/ASSEMBLY/OPERATION/TESTS | CHARACTERISTIC | CLASS | TYPE OF CHECK | QUANTITY OF CHECK | REFERENCE DOCUMENT | ACCEPTANCE STANDARD | FORMAT OF REC | D | AGENCY | | REMARKS |
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | |
| INPROCESS INSPECTIONS: | | | | | | | | | | | | |
| 2.1 | Stator core | 1.Core length dia | Major | Mechanical | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| | | 2.Core locking | Major | Visual | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| | | 3.Rigidity of core | Major | Mechanical | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| 2.2 | Die cast rotor | 1.Core length | Major | Mechanical | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| | | 2.Blow holes | Major | Mechanical | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| 2.3 | Wound stator (if applicable) | 1.Resistance | Major | Electrical | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| | | 2.H.V.Test | Major | Electrical | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| | | 3. Insulation resistance | Major | Electrical | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| 2.4 | Final Assembly | 1.Completeness | Major | Visual | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| | | 2.Runout in case of flanged motors | Major | Mechanical | 100% | --do-- | --do-- | Inspection Record | | P | V | |
| | | 3.Mounting dimensions | Major | Mechanical | 100% | --do-- | --do-- | Inspection Record | | P | V | |

421657/2021/BAP-QA_MECH

| BHEL BAP/ RANIPET / TAMIL NADU INDIA | | OEM SUPPLIER To be filled by OEM Supplier | | MANUFACTURING QUALITY PLAN FOR LT MOTOR (Up to TO 200KW) - FGD Application | | | | MQP:E:LTM:NABINAGAR :FGD SLURRY :001 | | | | |
|---|------------------------------------|--|-------|--|------------------|---|---|---|-----|-------------|----------------------|---------|
| | | LT MOTOR Manufacture | | | | | | REV:NO:00 | | | | |
| | | To be filled by OEM Supplier | | | | | | DATE: 17.07.2020 | | | | |
| | | Page : | | | | | | | | | | |
| S1.No. | COMPONENT/ASSEMBLY/OPERATION/TESTS | CHARACTERISTIC | CLASS | TYPE OF CHECK | QUANTUM OF CHECK | REFERENCE DOCUMENT | ACCEPTANCE STANDARD | FORMAT OF REC | D | AGENCY M | BHEL/ BHEL AIA | REMARKS |
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | |
| FINAL INSPECTION AND TESTING: | | | | | | | | | | | | |
| 3.1 | Routine Test | 1.Resistance Measurement on winding & space heater | Major | Electrical | 100% | BHEL / NTPC Spec, GA Drawing & Apprd Datasheet and IS/IEC 60034 (As applicable) | BHEL / NTPC Spec, GA Drawing & Apprd Datasheet and IS/IEC 60034 (As applicable) | Inspection Record | | P | W | |
| | | 2.HV Test | Major | Electrical | 100% | --do-- | --do-- | Inspection Record | | P | W | |
| | | 3.Phase sequence & direction of rotation | Major | Electrical | 100% | --do-- | --do-- | Inspection Record | | P | W | |
| | | 4.No load run test | Major | Electrical | 100% | --do-- | --do-- | Inspection Record | | P | W | |
| | | 5.Vibration test | Major | Mechanical | 100% | --do-- | --do-- | Inspection Record | | P | W | |
| | | 6.Name plate recheck | Major | Visual | 100% | --do-- | --do-- | Inspection Record | | P | W | |
| | | 7.Paint shade thickness & adhesion | Major | Visual & Measurement | 100% | --do-- | --do-- | Inspection Record | | P | W | |
| | | 8.Mountings & Overall dimensions | Major | Mechanical | 100% | --do-- | -do- | Inspection Record | | P | W | |

| BHEL BAP/ RANIPET / TAMIL NADU INDIA | | OEM SUPPLIER To be filled by OEM Supplier | | MANUFACTURING QUALITY PLAN FOR LT MOTOR (Up to TO 200KW) - FGD Application | | | | | MQP:E:LTM:NABINAGAR :FGD SLURRY :001 | | |
|---|------------------------------------|--|-------|--|------------------|--------------------|---------------------|-------------------|---|--------|---------|
| | | LT MOTOR Manufacture | | | | | | | REV:NO:00 | | |
| | | To be filled by OEM Supplier | | | | | | | DATE: 17.07.2020 | | |
| | | Page : | | | | | | | | | |
| S1.No. | COMPONENT/ASSEMBLY/OPERATION/TESTS | CHARACTERISTIC | CLASS | TYPE OF CHECK | QUANTUM OF CHECK | REFERENCE DOCUMENT | ACCEPTANCE STANDARD | FORMAT OF REC | D | AGENCY | REMARKS |
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
| 3.2 TYPE TESTS ### | | | | | | | | | | | |
| 3.3 | Preservation and Packing | 1.Completeness | Major | Review | 100% | --do-- | --do-- | Inspection Record | | P | V |
| | | 2.Motors covered with polythene sheets | Major | Visual | 100% | --do-- | --do-- | Inspection Record | | P | V |
| | | 3.Packing | Major | Visual | 100% | --do-- | --do-- | Inspection Record | | P | V |
| ### TYPE TEST REQUIREMENTS FOR LT MOTOR INCLUDING DEGREE OF PROTECTION TEST REPORT (IP 55) BHEL/BHEL AIA (Authorised Inspection Agency) shall review the Identical design type test report during including degree of Protection Test report (IP 55) for acceptance in line with BHEL/ Ultimate Customer - NTPC approved Data sheet/Drg/Spec for LT Motor rating up to 50KW and BHEL/Ultimate Customer NTPC approved type test report for LT Motor rating more than 50KW and up to 200KW. If not available for Similar / Identical Design of any of the LT Motor motor, then OEM / LT Motor Manufacture shall conduct all these type tests at Third party lab / Government Approved Lab / Own lab in presence of BHEL/BHEL AIA / without any cost implication to BHEL/Ultimate Customer - NTPC within reasonable time. | | | | | | | | | | | |
| 1. Measurement of Resistance of Stator 2. No Load test at Rated Voltage 3,. Pull out test 4.Temperature Rise Test 5.Momentary Exceeds Torque Torque Test 6.High Voltage Test 7.Test for Vibration Severity 8.Test for Noise Level Measurement 9. Over Speed Test 10. Degree of Protection TC (IP 55) | | | | | | | | | | | |
| LEGEND: OEM = Orginal Equipement Supplier M = LT Motor Manufacture - BHEL AIA = BHEL AUTHORISED INSPECTION AGENCY GA Drawing : General Arrangment Drawing NTPC - NATIONAL THERMAL POWER CORPORATION (Ultimate Customer) OEM SUPPLIER : (To be Filled up by OEM Supplier) LT MOTOR Manufacture : (To be Filled up by OEM Supplier) | | | | | | | | | | | |

421657/2021/BAP-QA-MECH

| OEM SUPPLIER WITH OEM MFGR.'s LOGO (TO BE FILLED BY OEM SUPPLIER) | | LT MOTOR MANUFACTURER'S NAME AND ADDRESS (TO BE FILLED BY OEM / LT MOTOR MANUFACTURE) | MANUFACTURING QUALITY PLAN | | | | | | PROJECT: NTPC Nabinagar 3 x 660 MW (BHEL W.O no: G 609, G 610 and G 611) FGD PACKAGE NTPC CONTRACT NO: CS-0370-109-(1A) -2-FC -NOA-0059 1819 for Nabinagar 3 x 660 MW MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (TO BE FILLED BY OEM SUPPLIER) | | | | | |
|--|------------------------|--|---|---------------|------------------|---|--------------------|------------------|--|----|--------|---|---|---------|
| | | | ITEM: LT MOTOR(IE3) UP TO 200KW FOR FGD APPLICATION SUB-SYSTEM: FGD - SLURRY PUMPS | | | QP NO.: SLURRY PUMPS :LT MOTOR:001 REV.NO.: 00 DATE: PAGE: OF.... | | | | | | | | |
| SL. NO | COMPONENT & OPERATIONS | CHARACTERISTICS | CLASS | TYPE OF CHECK | QUANTUM OF CHECK | | REFERENCE DOCUMENT | ACCEPTANCE NORMS | FORMAT OF RECORD | | AGENCY | | | REMARKS |
| 1. | 2. | 3. | 4. | 5. | M | C/N | 7. | 8. | 9. | D* | M | C | N | 11. |
| | | | | | | | | | | | | | | |

| | | | | | | |
|--|--|---|-----------------------------|--|--------------------------|----------------------|
| | | LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: OEM MANUFACTURER/LT MOTOR SUB-SUPPLIER C: MAIN SUPPLIER – BHEL/BHEL AIA , N: NTPC P: PERFORM W: WITNESS AND V: VERIFICATION. AS APPROPRIATE, CHP: NTPC SHALL IDENTIFIED IN COLUM "N" AS 'W' | DOC. NO.: | | REV..... CAT..... | |
| OEM MANUFACTURER/ LT MOTOR SUPPLIER | | | MAIN (BHEL) SUPPLIER | | | |
| SIGNATURE | | | FOR NTPC USE | | REVIEWED BY | APPROVED BY |
| | | | | | | APPROVAL SEAL |

FORMAT NO.: QS-01-QAI-P-09/F1-R1

1/1

ENGG. DIV./QA&I

