# 3x800MW PATRATU SUPER THERMAL POWER PROJECT (PHASE – I)

**TECHNICAL SPECIFICATION**

**FOR**

**GUN METAL VALVES**
**(Globe Type)**

**SPECIFICATION NO. PE-TS-434-100-M003**

BHARAT HEAVY ELECTRICALS LIMITED, POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, INDIA

| | | |
|---|---|---|
| | **TECHNICAL SPECIFICATION**<br>**GUN METAL VALVES**<br>**(Globe Type)**<br>3x800MW PATRATU SUPER THERMAL POWER PROJECT (PHASE – I) | SPECIFICATION NO. PE-TS-434-100-M003<br><br>REV. NO.: 00 \| DATE: 25.08.2023<br>SHEET 1 OF 1 |

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| | TECHNICAL SPECIFICATION<br>GUN METAL VALVES<br>(Globe Type)<br>3x800MW PATRATU SUPER THERMAL POWER PROJECT (PHASE – I) | SPECIFICATION NO. PE-TS-434-100-M003 | |
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# SECTION-I

# SPECIFIC TECHNICAL REQUIREMENTS

| | SPECIFIC TECHNICAL REQUIREMENTS FOR GUN METAL VALVES (Globe Type) | SPECIFICATION NO. PE-TS-434-100-M003 |
|---|---|---|
| | | SECTION:I |
| | | REV. NO. 00 \| DATE. 25.08.2023 |
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## 1 GENERAL

1.1 The valves shall meet the technical requirements and conform to the requirements of Section-I and Data sheet-A of Section-II. However, in the event of contradictions between Section-I & Section-II/Data Sheet-A, Data Sheet-A will prevail.

1.2 The technical requirements for valves shall, in general, be as per the attached Data sheet A of Section-II.

## 2. SCOPE OF SUPPLY

2.1 The valves complete with all accessories shall be supplied as per Data sheets A of Section-II. For detail refer the same. Each valve (quantity and other details specified in Data Sheet-A) shall be complete with the following accessories.

i) Lifting arrangement provision for handling i.e., lifting lugs, eye bolts etc.
ii) Actuators and limit switches as required to make valve complete in all respects.

2.2 Commissioning spares, if any.
2.3 Set of special tools and tackles if required for the maintenance, erection etc. of the equipment supplied.
2.4 Mandatory spares as applicable depending upon the project requirement.
2.5 Finish paints for touch-up painting of equipment after erection at site in sealed containers.

## 3 CODES AND STANDARDS

**3.1** All pressure parts shall be designed in accordance with applicable **Relevant International Codes** and Bidder to note that **Indian and Chinese design standards are not acceptable.**
3.2 The design, material, construction features, manufacture, inspection and testing of valves shall conform to the latest applicable codes and standards.
3.3 The design and testing of valves covered under this specification shall be governed by the following standards.

| DESCRIPTION | DESIGN STANDARD | TESTING STANDARD |
|---|---|---|
| For Globe Valves of sizes 50 NB and smaller | BS 5154/ASME B 1.20.1 FEMALE PARALLEL THREAD | BS 5154/ BS EN 12266 |

3.4 In case of any conflict between the above codes/ standards and this specification, the latter shall prevail and in case of any further conflict in the matter, the interpretation of the specification by the Engineer shall be final and binding.

## 4 DESIGN REQUIREMENTS

These valves shall be used for non-corrosive media like cooling water service, drain from compressed air piping etc. as specified in Data Sheet- A. All valves shall be suitable for service conditions i.e. flow, temperature and pressure under which they are required to operate and those performing similar duties shall be interchangeable with each other unless otherwise specified.

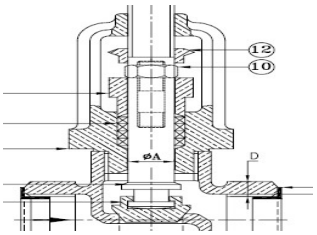
## 5 MATERIALS

5.1 The materials of construction of main parts of the Globe valves shall be as specified in Data Sheet-A.
5.2 The materials of construction of the remaining parts shall be as per the relevant standard governing the valves and to suit service conditions. These materials shall be subject to purchaser’s approval.

## 6 CONSTRUCTION FEATURES

6.1 The valves covered under this specification for sizes upto 50NB shall have screwed ends and shall be provided with female parallel / taper threads. Bonnet shall be screwed in / union yoke type. Valve ends shall be screwed female/ male parallel threads as per ANSI B1.20.1 as specified in Data Sheet-A. All valves with flanged ends shall have raised face flanges and drilling details as per BS1560-3.3.

6.2 All globe valves shall be provided with yoke type screwed- in bonnet and shall be of rising stem, outside screw as indicated in the sketches below. Joint of bonnet with body shall be metal to metal.




6.3 The valves covered under this specification shall have seats as an integral part of the body.

6.4 All globe valves shall be of rising stem, outside screw and yoke type with non-rising hand wheel. Protective cover shall be provided to the spindle to protect from foreign materials. The maximum hand wheel force of 500N must not be exceeded.

6.5 Gland & gland flange shall be provided in two pieces for uniform tightening of glands. Gland flange shall be of gun metal.

6.6 Globe valves shall preferably have conical or spherical disc. and the disc shall be free to revolve on the spindle.

6.7 Separate seat rings provided in the body and wedge/disc shall be of replaceable type.

6.8 All regulating valves shall be designed to prevent erosion of the valve discs and seats when the valves are operated partially opened.

6.9 All valves shall have an arrow indicating the direction of flow cast or embossed on the valve body. The direction of flow for globe valves shall be from under to over the disc.

6.10 Discs of globe valves which are detachable or two piece construction shall be of such design that they do not become detached from the spindle while in service. Discs of globe & lift check valves shall be guided to ensure correct alignment.

6.11 All Globe valves shall preferably be provided with radiused/ spherical/ angular faced disc seatings. The disc shall be secured with stem with disc nut or with such an arrangement that the disc shall be free to revolve. Disc of compressed air system globe valves shall be provided with renewable synthetic rubber seating ring of hardness 60 º +5 /-0 Shore A.

6.12 All globe valves shall be offered with back seating arrangement for replacement of gland packing when the valves are full opened and while working under full working pressure. Back seats shall be provided on both bonnet and stem.

6.13 Globe valves shall be supplied with mechanical position indicator for OPEN and SHUT position.

6.14 All globe valves shall be closed by rotating the handwheel in the clockwise direction when looking at the face of the handwheel. The face of each handwheel shall be clearly marked “Open” and “Shut” with arrows indicating the direction of rotation to which they refer.

6.15 Each valve hand wheel shall be fitted with a circular nameplate of an approved material indicating the valve Tag No., duty or service condition intended and the function of the valve. For valves of smaller size, a permanent steel tag may be fixed on the valve body indicating the purchaser's valve Tag Number and service. The above are in addition to rating plates and labels being provided by the manufacturer.

## 7 MANUFACTURE OF VALVES

7.1 Valve castings shall be procured from foundries observing strict quality control and approved by reputed customers.

7.2 Particular care shall be taken to ensure that all foundry sand and loose material is properly removed from castings by fettling before the valve's manufacture is started.

## 8 TESTING AND INSPECTION

8.1 All valves shall be tested and inspected as per the approved quality plan. The minimum requirements are as indicated in attached quality plan. However, in case of order on the vendor, the QP shall be finalized by vendor with customer without any financial implications to meet customer project technical requirements.

8.2 Hydrostatic/Air Tests:
Valves shall be hydraulically tested for shell tightness & seat tightness in accordance with BS 5154 & BS EN 12266-1 (Part-1) (as applicable) before painting of valves.

8.3 Globe valves seats shall also be tested on air at a pressure of 7kg/cm2.

8.4 No leakage shall be allowed for any size of the valve covered under this specification.

8.5 Blue matching of seats shall be carried out and records shall be maintained for verification by the Purchaser.

8.6 Dimensional and functional checks shall be carried out.

## 9 EXCLUSIONS

Erection & Commissioning of equipment at site is excluded from the bidder's scope.

## 10 QUALITY ASSURANCE

10.1 The items covered under this contract shall be subjected to inspection, testing and quality surveillance. The Inspection Agency shall, at all reasonable times have access to Vendor's works, Quality Control records and all facilities as reasonably required for carrying out the inspection and testing efficiently, and these shall be provided by the vendor free of cost.

10.2 The Quality Plan enclosed with this specification specify minimum quality control requirement. During contract stage vendor shall furnish this Quality Plan duly signed & stamped for BHEL approval. Quality plans shall be approved by BHEL and customer. All inspection and testing shall be carried out by BHEL/ BHEL representative and customer (as applicable). In case inspection is by both BHEL and their customer, then the inspection can be carried out jointly or separately, which will be informed later. In case of the foreign bidder, inspection shall be carried out by reputed third party.

10.3 The charges for third party inspection (Lloyds, TUV or equivalent) for foreign bidders shall be included in the base price of the item by the bidder. This third party agency shall be approved by BHEL. Bidder to inform the same in the offer and mention the same in Quality Plan.

**Note:** There may be minor changes in quality plan depending on customer/consultant comments which will have to be accommodated by vendor at no extra cost.

## 11 PAINTING

Valve bodies and other items shall be thoroughly cleaned after final testing. For hand wheel of the valves, surface preparation shall be as per SA 2.5, followed by 1 primer coat of Zinc Epoxy with min DFT 80microns and 1-2 intermediate coats of Epoxy high solid with min DFT of 160 microns and subsequently followed by 1 finish coat of 2-comp. polyurethane with DFT of 50microns. Total DFT of the paint will be min 290 microns.

## 12 PACKING

Packing to be provided as per details mentioned below:

a. Each valve shall be drained, cleaned, prepared and suitably protected in such a way so as to minimize the possibility of damage and deterioration during transit and storage.
b. The valve shall be dispatched in total assembled form.
c. Body ends shall be suitably sealed to protect them against damage during transit and storage.
d. Valve Tag Nos. shall be incorporated in all the dispatch documents.
e. Proper care shall be taken to avoid damage to the finished surface during transit.
f. All the valves shall be packed suitably in wooden cases in order to avoid damage during transit and also during storage at site in tropical climate conditions for a period of 15-18 months.

## 13 SPARES

a) **Mandatory Spares:** These shall be as per Data Sheet-A.

b) Order for the spares may be placed simultaneously or otherwise at the option of purchaser.

## 14 DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER

Bidder shall submit the following documents duly filled, signed and stamped along with the bid:

a) Compliance sheet
b) Documents as per the list indicated in the NIT.

The above are the only documents which will be used for technical evaluation unless other documents are asked for during technical clarifications. Any other technical document enclosed with the bid shall be ignored for the purpose of technical evaluation. All other documents attached with the specification are for information of the vendor and no comments shall be marked on these.

## 15 DELIVERY SCHEDULE & DOCUMENTS TO BE SUBMITTED AFTER AWARD OF CONTRACT:

| | | | 1st | | 2nd | | |
|---|---|---|---|---|---|---|---|
| **S.no** | **BHEL Drawing No.** | **Drawings Title** | **Vendor Sub.** | **BHEL comment** | **Vendor Sub.** | **BHEL/Customer comment/approval** | **Total Engg. Time** |
| | **GUN METAL VALVES** | | | | | | |
| 1 | PE-V0-434-100-M091 | GA Drg. for Gun Metal Valves | 7 | 5 | 5 | 18 | 35 |
| 2 | PE-V0-434-100-M092 | QP for Gun Metal Valves | 7 | 5 | 5 | 18 | 35 |

## 16 DOCUMENTS TO BE SUBMITTED AFTER AWARD OF RATE CONTRACT:

**Category-A:**

- GA Drawing indicating complete cross sectional arrangement of valve, binding dimensions, dismantling clearances, weight and Bill of Material incorporating all material of construction (MOC) of various parts & relevant standard to which MOC confirms to.
- Quality plan duly signed and stamped.

Submission/Resubmission/Approval of above documents shall be considered for delay analysis by BHEL.

**Category-B:**

NIL

| | TECHNICAL SPECIFICATION<br>GUN METAL VALVES<br>(Globe Type)<br>3x800MW PATRATU SUPER THERMAL POWER PROJECT (PHASE – I) | SPECIFICATION NO. PE-TS-434-100-M003 | |
|---|---|---|---|
| | | | |
| | | REV. NO.: 00 | DATE: 25.08.2023 |
| | | SHEET 1 OF 1 | |

## SECTION-II

- **DATA SHEET – A**
- **QUALITY PLAN**
- **COMPLIANCE SHEET**

**DATA SHEET- A**
**GUN METAL VALVES**
**3X800 MW Patratu STPP (Phase-I)**

**SPECIFICATION NO. PE-TS-434-100-M003**

**SECTION II**

**REV. NO.: 00 DATE: 25.08.2023**

**SHEET 1 OF 2**

| 1 | 2 | 3 | 4 | 5 | 6 | | 7 | 8 | 9 | 10 | 11 | 12 | 13 | | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SL NO. | TAG NOS. | TYPE OF VALVE | SIZE mm (NB) | OPERATION | DESIGN | | SERVICE | RATING, DESIGN & TESTING CODE | BODY MATERIAL | TRIM MATERIAL | END CONN | SPECIAL FEATURES | MATCHING PIPE OD X THKN | | MAIN VALVES QTY WITHOUT COMMISSIONING SPARES NOS. | +++COMMISIOMIMG SPARES | MANDATORY SPARES (COMPLETE VALVE ALONG WITH ALL ACCESSORIES) |
| | | | | | PRESSURE KG/CM2(G) | TEMP ( DEG $^0$ C) | | | | | | | MM | MM | | GLAND PACKING (SETS) | |
| 1 | SW-2, SW-5, SW-8, SW-9, SW-12, SW-14, SW-18, SW-21, SW-23, SW-25, SW-32, SW-39, SW-44, SW-46, SW-63 (3 NOS.), SW-74, SW-82, SW-84 TO 137, SW-141, SW-143, SW-146, SW-148, SW-150, SW-152 | HV (GLV) | 25 | MAN | 10 | 60 | SW | PN 16 OF BS 5154 | GUN METAL IS 318 Gr.2 | GUN METAL IS 318 Gr. 2 | SCREWED AS PER IS 554 PARALLEL FEMALE | -- | 34.2 | 4.00 | 79 | 8 | 4 |
| 2 | VALVES FOR AUTO DRAIN TRAPS | GLV | 25 | MAN | 8 | 50 | IA/SA | PN 16 OF BS 5154 | GUN METAL IS 318 Gr. 2 | GUN METAL IS 318 Gr.2 | SCREWED AS PER IS 554 PARALLEL FEMALE | DISC WITH NITRILE RUBBER | 34.2 | 4.00 | 200 | 20 | 10 |
| | | | | | | | | | | | | | | **TOTAL** | **279** | **28** | 14 |

NOTES
1. LEGENDS: MAN=MANUAL, GV=GATE VALVE, GLV=GLOBE VALVE, HV=HOSE VALVE NRV=NON RETURN VALVE, MO=MOTORISED
2. COMMISSIONING SPARES: ONE SET OF GLAND PACKING FOR EACH GATE/GLOBE VALVE

| | DATA SHEET-A<br>GUN METAL VALVES<br>(Globe Type)<br>3x800MW PATRATU SUPER THERMAL POWER PROJECT (PHASE – I) | SPECIFICATION NO. PE-TS-434-100-M003 | |
|---|---|---|---|
| | | VOLUME-II | |
| | | REV. NO.: 00 | DATE: 25.08.2023 |
| | | Sheet **2** of **2** | |

## MATERIAL OF CONSTRUCTION
## (GUN METAL GLOBE VALVES)

| PART NO. | PART NAME | MATERIAL | MATERIAL SPECIFICATION/ STD` |
|---|---|---|---|
| 1 | BODY | GM | Gun metal Gr. 2 as per IS:318 |
| 2 | BONNET | GM | Gun metal Gr. 2 as per IS:318 |
| 3 | WEDGE | GM | Gun metal Gr. 2 as per IS:318 |
| 4 | DISC CHECK NUT | GM | Gun metal Gr. 2 as per IS:318 |
| 5 | GLAND | GM | Gun metal Gr. 2 as per IS:318 |
| 6 | NITRILE RUBBER DISC/ DISC 'O' RING (valves for air service) | NITRILE RUBBER | HARDNESS 60 ° +5 /-0 SHORE 'A' |
| 7 | STEM | EXTRUDED BRASS | IS :320 GR HT2 |
| 8 | GLAND PACKING | GRAPHITED (ASBESTOS FREE) / TEFLON PACKINGS | |
| 9 | END CAP (hose valve) | GM | Gun metal Gr. 2 as per IS:318 |
| 10 | CAP GASKET (hose valve) | CAF | IS 2712:79 |
| 11 | END CHAIN (hose valve) | SS | AISI 316 |
| 12 | INDICATOR | GM | Gun metal Gr. 2 as per IS:318 |
| 13 | GLAND STUDS & NUTS | CARBON STEEL | BS 916:53 / ASTM A193 Gr.B7/ A194 Gr.2H |
| 14 | HAND WHEEL | MALLEABLE CAST IRON | ASTM A47 Gr 32510 |
| 15 | WASHER (for hand wheel screw) | CARBON STEEL | HOT DIP GALVANIZED AS PER ISO 1461/ AISI 316 |
| 16 | SCREW ( for handwheel) | CARBON STEEL | HOT DIP GALVANIZED AS PER ISO 1461/ AISI 316 |
| 17 | NAME PLATE | SS<br>(2 mm Thick) | AISI 316 FIXED TO VALVE OR FIRMLY TIED TO HAND WHEEL WITH SS WIRE |

| MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS | QUALITY PLAN | | SPEC. NO.: PE-TS-434-100-M003 | DATE: 22.08.2023 |
|---|---|---|---|---|
| | CUSTOMER: PVUNL | | QP NO.: PE-V0-434-100-M092 | DATE: 22.08.2023 |
| | PROJECT: 3X800 MW PATRATU STPP (PHASE-I) | | PO NO.: | DATE: |
| | ITEM: GUN METAL VALVES | SYSTEM: LP VALVES | SECTION: II | PAGE 1 OF 2 |

| SL NO. | COMPONENT & OPERATIONS | CHARACTERIST-ICS | 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 | 10 | | | 11 |
| | | | | | M | B/C | | | | | M | B | C | |
| **1.0 RAW MATERIAL INSPECTION** | | | | | | | | | | | | | | |
| 1.1 | Body, Bonnet, Wedge/Disc, Disc Check Nut, Gland and Indicator, Stem, Stud & Nut | Mechanical Properties & Chemical Composition | MA | Mech., Chemical Tests | 1/Heat | --- | Appd. Drg./ Material Std. | Appd. Drg./ Material Std. | MTC | √ | V | V | - | Body should carry Heat Marks for co-relation with Mill Test Certificates |
| | | Casting Defects | MA | Visual | 100% | --- | MSS-SP-55 | MSS-SP-55 | IR | √ | P | V | - | |
| 1.2 | 'O' Ring (Synthetic Rubber) For Air Service Valves | Surface Defects | MA | Visual | 100% | --- | Manufacturer's Std. | Free from Defects | IR | √ | P | V | - | |
| | | Hardness | MA | Hardness Test | 100% | --- | Appd. Drg. | Appd. Drg. | TC | √ | P | V | - | |
| 1.3 | Handwheel | Mech. Properties | MA | Mech. Test | 1/Heat | --- | Appd. Drg. | Appd. Drg. | TC | √ | P | V | - | |
| **2.0 IN-PROCESS INSPECTION** | | | | | | | | | | | | | | |
| 2.1 | Body, Bonnet, Wedge/Disc, Gland After Machining | Dimensions | MA | Measurement | 100% | --- | Mfg.Drg. | Mfg.Drg. | Log Book | - | P | V | - | |
| | | Threaded Ends | MA | Thread Guage | 100% | --- | Mfg.Drg. | Mfg.Drg. | Log Book | - | P | V | - | |
| | | Disc/Body Seat Ends | CR | Blue Matching | 100% | --- | The Surface Shall Be Smooh And Shall Have 100% Contact with Seating Surfaces | | IR | √ | P | V | - | |
| 2.2 | Body, Bonnet Stem, Disc/Wedge | Surface Defects | CR | LPT | 100% | --- | ASTME165 | ASME B 16.34 Appendix-III | IR | √ | P | V | - | |
| **3.0 TESTING** | | | | | | | | | | | | | | |
| 3.1 | Body, Seat & Back Seat # | Leak Tightness | CR | Hydraulic Test | 100% | Refer Note '1' | Appd. Drg | No Leakage | TR | √ | P | W | V | #: Back Seat If Applicable |
| 3.2 | Seat | Leak Tightness | CR | Pneumatic Test | 100% | | Appd. Drg | No Leakage | TR | √ | P | W | V | |
| 3.3 | Operational Testing | Full Opening & Closing of Valve | CR | Manual | 100% | | - | Smooth Opening & Closing of Valve | IR | √ | P | W | V | |
| **4.0 FINAL INSPECTION** | | | | | | | | | | | | | | |
| 4.1 | Complete Valve | End Connection & Overall Dimensions, Threading, Fixing of Nameplate with Valve Tag Nos. | CR | Measurement, Visual | 100% | Refer Note '1' | Appd. Drg. | Appd. Drg. | IR | √ | P | W | V | |
| 4.2 | Painting (Handwheel only) | Surface Preparation & Paint Thickness (DFT) | MA | Visual, Measurement | 100% | --- | Appd. Drg. | Appd. Drg. | IR | √ | P | V | - | |
| 4.3 | Packing | Packing Soundness | MA | Visual | 100% | --- | Manufacturer's Std. / Appd. Packing Procedure | Manufacturer's Std. / Appd. Packing Procedure | IR | √ | P | V | - | |

| BIDDER/SUPPLIER | |
|---|---|
| Sign & Date | |
| Seal | |

| BHEL | | | | | |
|---|---|---|---|---|---|
| ENGINEERING | | | QUALITY | | |
| | Sign & Date | Name | | Sign & Date | Name |
| Checked by: | Rohit Chawla | Rohit Chawla | Checked by: | Ashish Panigrahi | Ashish Panigrahi |
| Reviewed by: | Prince Malik | Prince Malik | Reviewed by: | Harish Kumar | Harish Kumar |

| FOR CUSTOMER REVIEW & APPROVAL | | | |
|---|---|---|---|
| Doc No: | | | |
| | Sign & Date | Name | Seal |
| Reviewed by: | | | |
| Approved by: | | | |

| MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS | QUALITY PLAN | | SPEC. NO.: PE-TS-434-100-M003 | DATE: 22.08.2023 |
|---|---|---|---|---|
| | CUSTOMER: PVUNL | | QP NO.: PE-V0-434-100-M092 | DATE: 22.08.2023 |
| | PROJECT: 3X800 MW PATRATU STPP (PHASE-I) | | PO NO.: | DATE: |
| | ITEM: GUN METAL VALVES | SYSTEM: LP VALVES | SECTION: II | PAGE 2 OF 2 |

| 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 | 10 | | | 11 |
| | | | | | M | B/C | | | D | M | B | C | |

**NOTES:**

1. 10% or min. 2 nos. at random, whichever is higher, by BHEL/Customer for each type, size & rating.
2. Welding and Impregnation of casting are not permitted.
3. The latest revision/year of issue of all the standard indicated in the QP shall be referred.

**Legends:**

**D**: Documentation; Records identified with "Tick"(√), shall be essentially included by supplier in QA Documentation

**M**: Supplier/ Manufacturer/ Sub-Supplier
**B**: Main Supplier/BHEL/ Third Party Inspection agency
**C**: Customer
**TPIA**: Third Party Inspection Agency
**DFT:** Dry Film Thickness

**MA**: Major Characteristic
**CR**: Critical Characteristic
**TC**: Test Certificate
**TR**: Test Report
**MTC**: Mill Test Certificate

**P**: Perform
**W**: Witness
**V**: Verification
**IR**: Inspection Report
**ADS:** Actuator Data Sheet

**HT**: Heat Treatment
**LPT**: Liquid Penetrant Test
**UT**: Ultrasonic Test
**RT**: Radiography Test
**MPI:** Magnetic Particle Inspection

| BIDDER/SUPPLIER | |
|---|---|
| Sign & Date | |
| Seal | |

| BHEL | | | | | |
|---|---|---|---|---|---|
| ENGINEERING | | | QUALITY | | |
| | Sign & Date | Name | | Sign & Date | Name |
| Checked by: | Rohit Chawla | Rohit Chawla | Checked by: | Ashish Panigrahi | Ashish Panigrahi |
| Reviewed by: | Prince Malik | Prince Malik | Reviewed by: | Harish Kumar | Harish Kumar |

| FOR CUSTOMER REVIEW & APPROVAL | | | |
|---|---|---|---|
| Doc No: | | | |
| | Sign & Date | Name | Seal |
| Reviewed by: | | | |
| Approved by: | | | |

| | COMPLIANCE SHEET<br>GUN METAL VALVES<br>3X800MW PATRATU STPP | SPECIFICATION NO. PE-TS-434-100-M003<br>SECTION: II<br>REV: 0<br>DATE: 25.08.2023<br>SHEET 1 OF 1 |
|---|---|---|

**I hereby comply/not comply (*) to all the requirements of this technical specification in totality.**

*** In case the bidder does not comply to the technical specification, the deviations shall be explicitly listed in**

**TABLE-1 below in case of procurement through GeM portal**

**Or else**

**Cost of Withdrawal sheet of GCC**

## TABLE – 1

| S. NO. | VOLUME / SECTION | PAGE NO. | CLAUSE NO. | COMPLETE DESCRIPTION OF DEVIATION | REASON FOR QUOTING DEVIATION |
|---|---|---|---|---|---|
| **TECHNICAL DEVIATIONS ONLY** | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |

**NOTES FOR TABLE-1:**

1. All the bidders have to list out Technical deviations (if any) in detail in the above format.
2. Any deviation not mentioned above and shown separately or found hidden in offer, will not be taken cognizance of.
3. The final decision of acceptance/ rejection of the deviations quoted by the bidder shall be at the discretion of the Purchaser.
4. Bidders to note that any Technical deviation not listed above and requested after Part-I opening shall not be considered.

| PARTICULARS OF BIDDER'S AUTHORISED REPRESENTATIVES | | |
|---|---|---|
| | | |
| | | |
| **NAME** | **DESIGNATIONS** | **SIGN & DATE** |

| | PRE - QUALIFYING REQUIREMENTS | DOCUMENT NO: PE-TS-434-000-M051 |
|---|---|---|
| | | REVISION NO: 00 DATE: 25.08.2023 |
| | | SHEET: **1** of **2** |

**Project: 3x800 MW Patratu STPP (Phase-I)**
**Package: GUN METAL VALVES (Globe Type)**

**CRITERIA FOR EVALUATION (TECHNICAL):**

1.0 Technical Pre-Qualifying Requirements:

1.1 The bidder should have designed, in-house manufactured, tested, inspected and supplied Gate/Globe valves with minimum size of 25 NB, with minimum Class PN-10/equivalent of relevant IS/BS/ASTM code for use in a power plant or for similar application.

1.2 The item(s) mentioned in point 1.1 should have performed successfully for at least one year. To establish meeting this requirement, the bidder shall conform to any one of the following clauses:

a) Execution of two purchase orders for different End-users with the item(s) performing successfully for one (1) year from date of commissioning to the date of bid submission as defined by BHEL-PEM in NIT. Different projects of a customer shall be considered as different End-users.
b) Minimum one (1) repeat contract from two (2) different Purchasers (i.e. 2 nos. of Purchase orders from each purchaser). A contract shall be considered as repeat, when the second purchase order is placed by the same purchaser after lapse of minimum one (1) year from supply completion of first purchase order.
c) Execution of one (1) purchase order as per sl. no. 1.2(a) above from one End-user and one (1) repeat contract from another Purchaser as per sl. No. 1.2(b) above.
d) Three (3) purchase orders from one (1) purchaser. Second and third purchase orders shall be after lapse of minimum one (1) & two (2) years respectively from supply completion of first purchase order.

1.3 The bidder to furnish the following documents, as applicable, in support of the above:

a) For point 1.2 (a): Performance certificates from End-user (duly signed & dated) specifying that the product is performing successfully for one (1) year from date of commissioning along with correlated purchase order(s).
b) For point 1.2 (b) & (d): Purchase order(s), Material dispatch clearance certificate (MDCC)/ Material receipt certificate (MRC)/Lorry receipt (LR) / Invoice.

1.4 In addition to above, bidder to furnish minimum one purchase order of Globe Valves with minimum size of 25 NB & material of construction as Gun metal with minimum Class PN-10/equivalent of relevant IS/BS/ASTM code.
Further, the bidder should have the following facilities for maximum size & rating as per BHEL requirement as mentioned in Datasheet-A:

a) Capability of designing and manufacturing of all the items.
b) In-house testing facilities for carrying out tests as per relevant standards & Quality plan. In case, the in-house testing facilities are not available, then bidder shall furnish undertaking that test(s) will be carried out from govt. approved lab or test house recognized by reputed customers.

Bidder to submit supporting documents (purchase order copies, Certificate indicating capacity and details/undertaking of manufacturing & testing facilities) for point 1.4(a) & 1.4(b) above.

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| **NAME:** Rohit Chawla<br>**DESIGNATION:** Manager<br>**DEPT.:** PS-PEM/ MPL | **NAME:** Prince Malik<br>**DESIGNATION:** Sr. Manager<br>**DEPT.:** PS-PEM/ MPL | **NAME**:BK AGARWAL<br>**DESIGNATION:** DH(MPL) |

1.5 To establish business continuity, bidder to submit minimum two (2) Purchase order for any of the item(s) as specified in clause no:1.1, with minimum size 25NB, in last 3 (three) years prior to the date of bid submission as defined by BHEL-PEM in NIT.

2.0 Bidder to also comply with general points mentioned below:

2.1 Offers of the JV companies/ Joint Bidders/ bidders having collaboration/ licensing agreement/ MOU/ Indian subsidiaries shall be evaluated as follows:

a) If bidder happens to be an Indian subsidiary of foreign OEM, then the credentials of the foreign OEM can also be considered for meeting PQR.

b) If bidder happens to be the Joint Venture Company, then the credentials of any of JV partners can be also considered for meeting PQR.

c) If bidder happens to be the having valid collaboration agreement/ MOU/ licensing agreement with some other company, then the credentials of collaborator/ MOU partner/ licensing company can also be considered for meeting PQR.

**Note:** If bidder(s) qualifies on the basis of credentials of his principal/ JV partner/ Collaborator/ joint bidder etc., then the principal/ JV partner/ Collaborator/ MOU partner/ joint bidder shall be responsible for overall design vetting and warranty/ guarantee of the package. The scope matrix clearly defining their respective roles including design vetting, manufacturing of critical component, E&C etc. and warranty/ guarantee shall be submitted along with the offer.

2.2 Bidder to note that the arrangement of bidding (joint bid partners/ collaborator/ MOU partner/ licensing company etc.) once offered to BHEL as a part of bidding documents cannot be changed till the execution of contract(s).

2.3 Consideration of offer shall be subject to customer's approval of bidders, if applicable

2.4 Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.

2.5 Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder/collaborators to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.

2.6 After satisfactory fulfilment of all the above criteria/ requirement, offer shall be considered for further evaluation as per NIT and all the other terms of the tender.

2.7 Bidder to ensure that Third Party/customer issued certificates being submitted as proof of PQR qualification should have verifiable details of document/ certificate issuing authority such as name & designation of issuing authority and its organization contact number and email-id etc. In case the same is not found available, BHEL has right to reject such document from evaluation.

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## Annexure for Packing List Guidelines ( To be complied with during execution)

For faster verification of bills, successful bidder to submit detailed Bill of Material (BOM) at the time of drawings/ documents submission after placement of PO. Each item of the BOM to be uniquely identified with item code no. or item Sl. No.. Supplier to ensure that all items which will find separate mention in the packing list are covered in this detailed BOM.

Supplier to also give the following undertaking in the BOM:
"The BOM provided herewith completes the scope (in content and intent) of material supply under PO No. ……. Dated …… Any additional material which may become necessary for the intended application of the supplied items/package will be supplied free of cost in most reasonable time.

Packing List must indicate:

a) Packing size
b) Gross weight and net weight of each package
c) Contents of the package with cross reference to BOM item code no. / Sl. No.
d) Quantity of each items separately.

The packing list must cover all the BOM items.

Supplier to give following undertaking in the packing list: The Packing list provided herewith is as per BOM approved under PO No. -----

| Project : 3 x 800 MW PVUNL PATRATU TPP PHASE-I | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Package : GUN METAL VALVES | | | | | | | | | | |
| GEM Bid no. | | | | | | | | | | |
| Item Number | Item Title | Item Description | HSN | Item Quantity | Unit of Measure | Consignee ID | Delivery Period (In number of days) | Quote/Unquote | Freight in terms of total Ex-works price in % | GST rate in % |
| 1 | 100-02020-A (MAIN SUPPLY) | Gun Metal Hose Valve (Globe Type) (details as per tech. spec. , DATA SHEET- A, SECTION II, REV. NO.: 00 DATE: 25.08.2023) | 84818090 | 79 | NOS | PATRATU_CON1 | 270 | | | |
| 2 | 100-02001-A (COMMISIONING SPARES ) | Gun Metal Hose Valve (Globe Type) - (GLAND PACKING SETS) (details as per tech. spec. , DATA SHEET- A, SECTION II, REV. NO.: 00 DATE: 25.08.2023) | 84818090 | 8 | SETS | PATRATU_CON1 | 270 | | | |
| 3 | 100-02000-B (MANDATORY SPARES) | Gun Metal Hose Valve (Globe Type) (details as per tech. spec. , DATA SHEET- A, SECTION II, REV. NO.: 00 DATE: 25.08.2023) (COMPLETE VALVE ALONG WITH ALL ACCESSORIES) | 84818090 | 4 | NOS | PATRATU_CON1 | 635 | | | |
| 4 | 100-02012-A (MAIN SUPPLY) | Gun Metal Globe Valve (details as per tech. spec. , DATA SHEET- A, SECTION II, REV. NO.: 00 DATE: 25.08.2023) | 84818090 | 200 | NOS | PATRATU_CON1 | 270 | | | |
| 5 | 100-02001-A (COMMISIONING SPARES ) | Gun Metal Globe Valve (GLAND PACKING SETS) (details as per tech. spec. , DATA SHEET- A, SECTION II, REV. NO.: 00 DATE: 25.08.2023) | 84818090 | 20 | SETS | PATRATU_CON1 | 270 | | | |
| 6 | 100-02000-B (MANDATORY SPARES) | Gun Metal Globe Valve (COMPLETE VALVE ALONG WITH ALL ACCESSORIES) (details as per tech. spec. , DATA SHEET- A, SECTION II, REV. NO.: 00 DATE: 25.08.2023) | 84818090 | 10 | NOS | PATRATU_CON1 | 635 | | | |