

## **BHUSAWAL- BALL VALVE-BID DOCUMENTS-**

- 1- Drawing documents cum Delivery Schedule
- 2- Risk & Cost-Annexure-II
- 3- BOQ (Unpriced)
- 4- Performa for Vendor Approval
- 5- Model Clause Certificate format
- 6- Local Content Certificate format
- 7- Technical PQR
- 8- Technical Specification

## Delivery Schedule for Ball Valve-1 X 660 MW BHUSAWAL TPP

Sl. No.	Package name	BHEL Drawing No	Drawing Title	Primary/ Secondary	Drg Sch for Vendors	Standard Delivery Terms for Supply Portion
1	<b>BALL VALVES</b>	PE-V0-415-100-M051	GA DRG FOR BALL VALVES	Primary	R-0 within 14 days from PO & subsequent revisions incorporating all the BHEL comments within 10 days of comments received from BHEL. BHEL shall furnish comments / approval on each submission within 18 days from receipt.	Within Four (04) months, from date of CAT-1 approval of Primary drawing/documents, subjected to drawing/document submission/re-submission schedule as stipulated, in case of any delay in submission/re-submission of Primary drawing/documents, then same shall be reduced from the given delivery period. Delay in BHEL's comments/approval beyond 18 days shall also be considered for delay analysis.
		PE-QP-415-100-M006	QP FOR BALL VALVES	Primary		

**Mandatory Spares:-** Within four (04) months from the date of BHEL clearance. Separate manufacturing clearance shall be given for mandatory spares.”

**Note:-**

- a. The end period specified is for completion of the deliveries. Deliveries to start progressively so as to meet the completion schedule.
- b. The delivery conditions specified are for contractual LD purposes, however BHEL may ask for early deliveries without any compensation thereof.
- c. Non-applicable drawings shall be decided during bid evaluation.
- d. Wherever schedule of drawings/documents submission / re-submission is stipulated in the Technical Specifications, same shall be superseded by delivery specified in NIT.

## GeM Tender-Bhusawal-Ball Valve - RISK & COST PURCHASE CLAUSE- Annexure-II

BHEL reserves the right to terminate the contract or withdraw portion of work and get it done through other agency, at the risk and cost of the contractor after due notice of a period of 14 days' by BHEL in any of the following cases:

- i) If the Seller/Contractor fails to deliver the goods or materials or any instalment thereof within the period(s) fixed for such delivery or the Seller's poor progress of the supply/ services vis-à-vis delivery/execution timeline as stipulated in the Contract, backlog attributable to seller including unexecuted portion of supply does not appear to be executable within balance available period;
- ii) Delivers goods or materials not of the contracted quality and failing to adhere to the contract specifications;
- iii) Withdrawal from or repudiation/ abandonment of the supply/ services by Seller before completion as per contract or if the Seller refuses or is unable to supply goods or materials covered by the Order/Contract either in whole or in part or otherwise fails to perform the Order/Contract;
- iv) Non-supply by the Seller within scheduled completion/delivery period as per Contract or as extended from time to time, for the reasons attributable to the Seller;
- v) Termination of Contract on account of any other reason (s) attributable to Seller.
- vi) Assignment, transfer, subletting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
- vii) If the Seller be an individual or a sole proprietorship Firm, in the event of the death or insanity of the Seller;
- viii) If the Seller/Contractor being an individual or if a firm on a partnership thereof, shall at any time, be adjudged insolvent or shall have a receiving order for administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any assignment of the Order/Contract or enter into any arrangement or composition with his creditors or suspend payment or if the firm dissolved under the Partnership Act;
- ix) If the Seller/Contractor being a company is wound up voluntarily or by order of a Court or a Receiver, Liquidator or Manager on behalf of the debenture holders and creditors is appointed or circumstances shall have arisen which entitles the Court of debenture holder and creditors to appoint a receiver, liquidator or manager;
- x) Non-compliance to any contractual condition or any other default attributable to Seller.

Such defaulting vendor/Seller shall not be eligible to participate in re-tendering conducted on account of risk purchase made due to fault of such vendor/Seller.

### 3.1 Risk & Cost Amount against Balance Work:

Risk & Cost amount against balance work shall be calculated as follows:

$$\text{Risk \& Cost Amount} = [(A-B) + (A \times H/100)]$$

Where,

A= Value of Balance scope of Work (\*) as per rates of new contract

## **GeM Tender-Bhusawal-Ball Valve - RISK & COST PURCHASE CLAUSE- Annexure-II**

B= Value of Balance scope of Work (\*) as per rates of old contract being paid to the contractor at the time

of termination of contract i.e. inclusive of PVC & ORC, if any.

H = Overhead Factor to be taken as 5

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

### **3.2 \* Balance scope of work (in case of termination of contract):**

Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Work for calculating risk & cost amount.

Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.

Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items total Quantities as per issued drawings would be deemed to be contract quantities.

Substitute/ extra items whose rates have already been approved would form part of contract quantities for this purpose.

Substitute/ extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.

However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.

NOTE: In case portion of work is being withdrawn at risk & cost of contractor instead of termination of contract, contract

quantities pertaining to portion of work withdrawn shall be considered as 'Balance scope of work' for calculating Risk &

Cost amount.

### **3.3 LD against delay in executed work in case of Termination of Contract:**

LD against delay in executed work shall be calculated in line with LD clause no. 16 of GCC, for the delay attributable to

contractor. For limiting the maximum value of LD, contract value shall be taken as Executed Value of work till termination

of contract.

Method for calculation of LD against delay in executed work in case of termination of contract" is given below.

i. Let the time period from scheduled date of start of work till termination of contract excluding the period of

Hold (if any) not attributable to contractor = T1

ii. Let the value of executed work till the time of termination of contract = X

## **GeM Tender-Bhusawal-Ball Valve - RISK & COST PURCHASE CLAUSE- Annexure-II**

iii. Let the Total Executable Value of work for which inputs/fronts were made available to contractor and were

planned for execution till termination of contract = Y

iv. Delay in executed work attributable to contractor i.e.  $T2 = [1-(X/Y)] \times T1$

v. LD shall be calculated in line with LD clause (clause 16) of the Contract for the delay attributable to contractor taking "X" as Contract Value and "T2" as period of delay attributable to contractor.

### **3.4. Recoveries arising out of Risk & Cost and LD or any other recoveries due from Contractor**

Without prejudice to the other means of recovery of such dues from the Seller recoveries from the Seller on whom risk & cost has been invoked shall be made from the following:

- a) Dues available in the form of Bills payable to seller, SD, BGs against the same contract.
- b) Dues payable to seller against other contracts in the same Region/Unit/ Division of BHEL.
- c) Dues payable to seller against other contracts in the different Region/Unit/ division of BHEL.

In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against contractor.

Item Number	Item Title	Item Description	Item Quantity	Unit of Measure	Consignee ID	ZipCode	Delivery Period (In number of days)	Unit Price (Inclusive of all taxes)	GST % (Included in Unit Price)	Brand	Model	HSN Code
1	Main valves :15 MM (NB) SIZE- BALL VALVES (WITHOUT COMMISSIONING SPARES)	Main valves :15 MM (NB) SIZE-FORGED STAINLESS STEEL AS PER ASTM A182 F304- TRIM Material-SS 316 (For Details refer BOQ Cum Data Sheet attached in Specification)	100	NOS	SUMIT_BHUSAWAL	425307	999					
2	Main valves :25 MM (NB) SIZE- BALL VALVES (WITHOUT COMMISSIONING SPARES)	Main valves :25 MM (NB) SIZE-FORGED STAINLESS STEEL AS PER ASTM A182 F304- TRIM Material-SS 316 (For Details refer BOQ Cum Data Sheet attached in Specification)	100	NOS	SUMIT_BHUSAWAL	425307	999					
3	Main valves :50 MM (NB) SIZE- BALL VALVES (WITHOUT COMMISSIONING SPARES)	Main valves :50 MM (NB) SIZE-FORGED STAINLESS STEEL AS PER ASTM A182 F304- TRIM Material-SS 316 (For Details refer BOQ Cum Data Sheet attached in Specification)	27	NOS	SUMIT_BHUSAWAL	425307	999					
4	Main valves :80 MM (NB) SIZE- BALL VALVES (WITHOUT COMMISSIONING SPARES)	Main valves :80 MM (NB) SIZE-CAST STAINLESS STEEL AS PER ASTM A351 CF8M- TRIM Material-SS 316 (For Details refer BOQ Cum Data Sheet attached in Specification)	10	NOS	SUMIT_BHUSAWAL	425307	999					
5	Main valves :150 MM (NB) SIZE- BALL VALVES (WITHOUT COMMISSIONING SPARES)	Main valves :150 MM (NB) SIZE-CAST STAINLESS STEEL AS PER ASTM A351 CF8M- TRIM Material-SS 316 (For Details refer BOQ Cum Data Sheet attached in Specification)	8	NOS	SUMIT_BHUSAWAL	425307	999					
6	COMMISSIONING SPARES- BODY SEAL (SETS)-15 MM (NB) SIZE	BODY SEAL (SETS)-15 MM (NB) SIZE-BALL VALVE	10	NOS	SUMIT_BHUSAWAL	425307	999					
7	COMMISSIONING SPARES- BODY SEAL (SETS)-25 MM (NB) SIZE	BODY SEAL (SETS)-25 MM (NB) SIZE-BALL VALVE	10	NOS	SUMIT_BHUSAWAL	425307	999					
8	COMMISSIONING SPARES- BODY SEAL (SETS)-50 MM (NB) SIZE	BODY SEAL (SETS)-50 MM (NB) SIZE-BALL VALVE	3	NOS	SUMIT_BHUSAWAL	425307	999					
9	COMMISSIONING SPARES- BODY SEAL (SETS)-80 MM (NB) SIZE	BODY SEAL (SETS)-80 MM (NB) SIZE-BALL VALVE	2	NOS	SUMIT_BHUSAWAL	425307	999					
10	COMMISSIONING SPARES- BODY SEAL (SETS)-150 MM (NB) SIZE	BODY SEAL (SETS)-150 MM (NB) SIZE-BALL VALVE	2	NOS	SUMIT_BHUSAWAL	425307	999					
11	COMMISSIONING SPARES- STEAM WASHER (SETS)-15 MM (NB) SIZE	STEAM WASHER (SETS)-15 MM (NB) SIZE-BALL VALVE	10	NOS	SUMIT_BHUSAWAL	425307	999					
12	COMMISSIONING SPARES- STEAM WASHER (SETS)-25 MM (NB) SIZE	STEAM WASHER (SETS)-25 MM (NB) SIZE-BALL VALVE	10	NOS	SUMIT_BHUSAWAL	425307	999					
13	COMMISSIONING SPARES- STEAM WASHER (SETS)-50 MM (NB) SIZE	STEAM WASHER (SETS)-50 MM (NB) SIZE-BALL VALVE	3	NOS	SUMIT_BHUSAWAL	425307	999					
14	COMMISSIONING SPARES- STEAM WASHER (SETS)-80 MM (NB) SIZE	STEAM WASHER (SETS)-80 MM (NB) SIZE-BALL VALVE	2	NOS	SUMIT_BHUSAWAL	425307	999					
15	COMMISSIONING SPARES-STEAM WASHER (SETS)-150 MM (NB) SIZE	STEAM WASHER (SETS)-150 MM (NB) SIZE-BALL VALVE	2	NOS	SUMIT_BHUSAWAL	425307	999					
16	COMMISSIONING SPARES- STEAM SEAL (SETS)-15 MM (NB) SIZE	STEAM SEAL (SETS)-15 MM (NB) SIZE-BALL VALVE	10	NOS	SUMIT_BHUSAWAL	425307	999					
17	COMMISSIONING SPARES- STEAM SEAL (SETS)-25 MM (NB) SIZE	STEAM SEAL (SETS)-25 MM (NB) SIZE-BALL VALVE	10	NOS	SUMIT_BHUSAWAL	425307	999					
18	COMMISSIONING SPARES- STEAM SEAL (SETS)-50 MM (NB) SIZE	STEAM SEAL (SETS)-50 MM (NB) SIZE-BALL VALVE	3	NOS	SUMIT_BHUSAWAL	425307	999					
19	COMMISSIONING SPARES- STEAM SEAL (SETS)-80 MM (NB) SIZE	STEAM SEAL (SETS)-80 MM (NB) SIZE-BALL VALVE	2	NOS	SUMIT_BHUSAWAL	425307	999					
20	COMMISSIONING SPARES-STEAM SEAL (SETS)-150 MM (NB) SIZE	STEAM SEAL (SETS)-150 MM (NB) SIZE-BALL VALVE	2	NOS	SUMIT_BHUSAWAL	425307	999					
21	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-15 MM (NB) SIZE	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-15 MM (NB) SIZE	5	NOS	SUMIT_BHUSAWAL	425307	999					
22	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-25 MM (NB) SIZE	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-25 MM (NB) SIZE	5	NOS	SUMIT_BHUSAWAL	425307	999					
23	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-50 MM (NB) SIZE	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-50 MM (NB) SIZE	2	NOS	SUMIT_BHUSAWAL	425307	999					
24	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-80 MM (NB) SIZE	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-80 MM (NB) SIZE	2	NOS	SUMIT_BHUSAWAL	425307	999					
25	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-150 MM (NB) SIZE	MANDATORY SPARES-(Complete Assembly without Commissioning spares)-150 MM (NB) SIZE	2	NOS	SUMIT_BHUSAWAL	425307	999					

**Letter head of Company (<Rs. 10 Cr value)**

Ref.....

Date.....

To,

Bharat Heavy Electricals Limited

PEM, PPEI Building, Plot No 25,

Sector -16A, Noida (U.P)-201301

**Subject: - Certification regarding local content**

Reference: Bid No.- ..

Name of Package: BALL VALVE

Dear Sir,

We hereby certify that items offered by us of .....(package name).....for.....(Project Name/Rate contract)..... meets the requirement of minimum local content in line with Cl. No. .... and the Public Procurement (Preference to Make in India), Order 2017 dated-15.06.2017, 28.05.2018 & 29.05.2019.

We further confirms that details of location at which the local value addition is made will be our registered works at .....(address of the works)

Yours very truly

..... (authorized signatory of company)

..... (firm name)

authorized signatory of company
------------------------------------

An undertaking regarding Model Clauses (To be provided alongwith bid)

Reference:

**RA/Bid no:**

**Item: Ball Valve**

**Project: 1 X 660 MW BHUSAWAL TPP**

**TO WHOM SO IT MAY CONCERN**

This is with reference to Ministry of Finance circular dated 23.07.20 reg. restriction under rule 144 (xi) of GFR.

“I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India. I hereby certify that M/s .....is not from such a country and is eligible to be considered against Bid/RA no: .....”


Sign & Signature

Date:

Place:



<b>Maharashtra State Power Generation Company Limited</b>			
<b>Bhusawal Project (1x660MW)</b>			
<b>Proforma of Vendor Approval</b>			
Sr. No.	Information/ Particulars required	Details furnished along with documents thereof	Remarks if any
1	Name of System /Package/Item:		
2	Name of agency on whom order for the main work is placed		
3	Approval for (Name of construction material)		
4	Name of the vendors specified in contract document for this material		
5	Name of the proposed Sub Contractor(Vendor)		
6	Reasons for asking new vendor		
7	Details of supporting documents in lieu of above reasons		
8	Specific requirement of material in terms of dia, size, quantity etc.		
9	When the material is required & for which structure		
10	Whether vendor is Partnership/ Pvt./Public Ltd. Company		
11	Particular of registration with Government		
	i) GST registration No.		
	ii) Company registration No. & Incorporation Certificate		
	iii) PF & ESIC Certificate.		
	iv) Pan No.		
12	Address of vendor's factory		
13	Contact No. of vendor's representative for additional information		
14	Production Business Area		
16	Average annual turnover for last three years as per CA's Certificate		
17	Name of Companies where the vendor is registered		
18	Details of orders completed last 3 years (Quantity & amount)		
19	Details of orders in hand (Quantity & amount)		
20	Maximum value & quantity of work executed during last 3 years		
21	Name of the reputed, well known clients to whom the vendor has supplied the material		
22	End users Performance Certificate (Name & documents) along with the relevant PO.		
23	Any additional information		
24	Recommendation		

	<b>PRE - QUALIFYING REQUIREMENTS</b>	DOCUMENT No.: PE-TS-415-000-M059
		REVISION No.: 00    DATE: 29.11.2021
		SHEET 1 of 3

Standard document No.: PE-TS-999-000-M059

Project: 1x660 MW BHUSAWAL TPS UNIT-6

Package: Ball Valves

**CRITERIA FOR EVALUATION (TECHNICAL / FINANCIAL):****1. Technical Pre-Qualifying Requirements:**

1.1 The bidder should have designed, in-house manufactured, tested, inspected and supplied Ball Valves (as mentioned below) for use in a power plant or for similar application.

**Category-A:** Minimum size of 50NB with FCS/FSS/FAS with #800 or Gun metal with #PN 16.0 for use in a power plant or similar application.

**Category-B:** Minimum size of 150NB with CCS/CSS/CAS with min. #150 for use in a power plant or similar application.

*Bidder to fulfill the PQR of both the categories individually.*

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

- (i) 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 in Notice Inviting Tender (NIT) by BHEL. Different projects of a customer shall be considered as different End-users.
- (ii) Minimum one (1) repeat contract from two (2) different Purchasers (i.e. 2 no. of Purchase orders from each purchaser). A contract shall be considered as repeat, when the second contract is given by the same purchaser after lapse of minimum one (1) year from supply completion of first contract.
- (iii) Execution of one (1) purchase order as per sl. no. (i) above from one End-user and one (1) repeat contract from another Purchaser as per sl. no. (ii) above.
- (iv) Three (3) repeat contracts from one (1) Purchaser. Second and third repeat contract shall be after lapse of minimum one (1) & two (2) years respectively from supply completion of first contract.

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

- a) For point 1.2(i): 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 (ii) & (iv): Purchase Order(s), Material Dispatch Clearance Certificate (MDCC)/ Material Receipt Certificate (MRC)/Lorry Receipt (LR)/ Supply Invoice.

PREPARED BY:


*U Singh*  
**NAME:** UPINDERJEET SINGH  
**DESIGNATION:** DY. MGR.  
**DEPT.:** PS-PEM/ MPL

REVIEWED BY:

*Prince Malik*  
**NAME:** PRINCE MALIK  
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**DEPT.:** PS-PEM/ MPL

APPROVED BY:

*B K Agarwal*  
**NAME:** B K AGARWAL  
**DESIGNATION:** AGM  
**DEPT.:** PS-PEM/ MPL

	<b>PRE - QUALIFYING REQUIREMENTS</b>	DOCUMENT No.: PE-TS-415-000-M059
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1.4 In addition to above, bidder should have the following facilities for different material & maximum size as per BHEL requirement as mentioned in Data Sheet-A of Technical Specification:

- a) Capability of designing and manufacturing of the item(s).
- 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 (s)/ Certificate indicating capacity and details/ undertaking of manufacturing & testing facilities) for point (a) & (b) above.

1.5 To establish business continuity, bidder is required to submit at least two (2) Purchase order with min. size of ball valve as specified below in last 3 (three) years prior to the date of bid submission as defined by BHEL-PEM in NIT for each category.

**Category-A:** Minimum size of 15NB.

**Category-B:** Minimum size of 65NB.

2.0 Bidder to also comply with below mentioned general points:


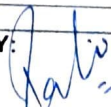
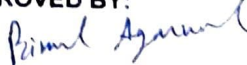
2.1 Offers of the JV companies/ Joint Bidders/ bidders having collaboration/ licensing agreement/ MOU/ Indian subsidiaries shall be evaluated as follows:


- a) If bidder happens to be an Indian subsidiaries 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.


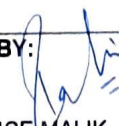
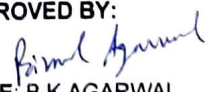
2.2 Bidder to note that the arrangement of bidding (joint bid partners/ collaborator/ MOU partner/ licensing company etc.) once offered to BHEL as a part of bidding documents cannot be changed till the execution of contract(s).

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

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	<b>PRE - QUALIFYING REQUIREMENTS</b>	DOCUMENT No.: PE-TS-415-000-M059
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- 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 fulfillment of all the above criteria/requirement, offer shall be considered for further evaluation as per NIT and all the other items 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 found not available, purchaser has right to reject such document from evaluation.

<b>PREPARED BY:</b>  <b>NAME:</b> UPINDERJEET SINGH <b>DESIGNATION:</b> DY. MGR. <b>DEPT.:</b> PS-PEM/ MPL	<b>REVIEWED BY:</b>  <b>NAME:</b> PRINCE MALIK <b>DESIGNATION:</b> SR. MGR. <b>DEPT.:</b> PS-PEM/ MPL	<b>APPROVED BY:</b>  <b>NAME:</b> B K AGARWAL <b>DESIGNATION:</b> AGM <b>DEPT.:</b> PS-PEM/ MPL
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# 1x660 MW BHUSA WAL TPS UNIT-6

## TECHNICAL SPECIFICATION FOR BALL VALVES

SPECIFICATION NO. PE-TS-415-100-M004  
REV. No.: 00




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

	<b>TECHNICAL SPECIFICATION</b> <b>BALL VALVES</b> <b>1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION NO. PE-TS-415-100-M004
		REV. No.: 00
		DATE: 29.11.2021
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		iii) COMPLIANCE SHEET	1

	<b>TECHNICAL SPECIFICATION</b> <b>BALL VALVES</b> <b>1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION NO. PE-TS-415-100-M004	
		SECTION: I	
		REV. NO.: 00	DATE: 29.11.2021
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## SECTION-I

### SPECIFIC TECHNICAL REQUIREMENTS

	<b>SPECIFIC TECHNICAL REQUIREMENTS FOR BALL VALVES 1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION NO: PE-TS-415-100-M004
		SECTION : I
		REV. No.: 00
		DATE: 29.11.2021
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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 sheet-A of Section-II. For detail refer the same.
- 2.2 Commissioning spares, if any.
- 2.3 Mandatory spares as applicable depending upon the project requirement.

## 3. CODES AND STANDARDS

- 3.1 The design, materials, construction features, manufacture, inspection and testing of valves shall conform to the latest applicable codes and standards.
- 3.2 The valves covered under this specification shall be designed and tested as per BSEN ISO 17292 (replaces BS: 5351).
- 3.3 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

- 4.1 These valves shall be used for non-corrosive media like compressed air systems (i.e. service air, instrument air etc.) and shall be of non-fire safe design.
- 4.2 Valves shall be selected in the appropriate rating based on the pressure/temperature conditions and service media mentioned in Data sheet-A of Section-II.
- 4.3 Valves with screwed/ socket welding ends up to size of 50NB shall be in 3-piece/ 2-piece construction and valves of size 65NB and above with flanged/butt welding ends shall be short body design and in 3-piece/ 2-piece construction.


## 5. MATERIALS

- 5.1 The materials of construction of main parts of Ball 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. These materials shall be subjected to approval.
- 5.3 Material used in manufacture of valve shall be of tested quality.

## 6. CONSTRUCTION FEATURES

- 6.1 All valves with screwed ends shall have screwed female parallel pipe threads as per IS: 554/ASME B 1.20.1.
- 6.2 All valves with flanged ends shall have raised face flanges and drilling details as per ANSI B16.5.



	<b>SPECIFIC TECHNICAL REQUIREMENTS FOR BALL VALVES 1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION NO: PE-TS-415-100-M004
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		SHEET 2 OF 4

- 6.3 Valves with socket welded and butt welded ends shall have extended pieces. These extended pieces shall be connected through screwed ends on one side and the other end will be suited to match the pipe depending on the type of end details i.e. socket/butt welds ends. Socket weld ends and Butt weld ends shall be as per ASME B16.11 and ASME B16.25 respectively.
- 6.4 Body seats shall be of renewable type and shall be of moulded PTFE completely contained and shall provide leak tightness in either direction and be suitable for service temperatures.
- 6.5 All the valves shall be provided with integral stop on body limiting quarter turn operation.
- 6.6 All the ball valves shall be of tight shut off type and the lever shall be designed such that lever is parallel to the flow direction when the valve is in open position.
- 6.7 All the ball valves fitted with a steel lever shall be closed by turning the lever in the clockwise direction. The direction of closing the valve and "Shut" position shall be marked on the valves. The lever shall have plastic covering. For gear operated valves the hand wheel shall clearly marked Open & Shut with arrows indicating the direction of rotation which they refer. Valves shall be closed by rotating the hand wheel in the clock wise direction when looking at the face of the hand wheel.
- 6.8 Each lever / hand wheel of the valve shall be fitted with a circular/ rectangular nameplate of SS material indicating the purchaser's Valve Tag No. and service description.
- 6.9 Valve end position limit switches (open and close) shall be provided and monitored for valves as per Data Sheet-A.


#### 7.0 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.

#### 8.0 QUALITY ASSURANCE, TESTING & INSPECTION

- 8.1 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.
- 8.2 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.
- 8.3 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.
- 8.4 The minimum NDT/testing and inspection requirements for valve shall be as per the attached Quality Plan. However, in case of order, final inspection and testing shall be carried out as per the final approved quality plan without any price implications.

**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.**

	<b>SPECIFIC TECHNICAL REQUIREMENTS FOR BALL VALVES 1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION NO: PE-TS-415-100-M004
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		SHEET 3 OF 4

8.5 Carbon steel valves shall be hydraulically tested for leak tightness before galvanizing the valve body and end pieces (pressure parts) also.

8.6 Hydrostatic/Air Tests:

- a. All the valves shall be tested hydraulically for strength and tightness of seats at the pressures as mentioned in BSEN ISO 17292.
- b. No leakage shall be allowed for hydraulic tests and zero leakage shall be allowed for pneumatic tests as mentioned in BSEN ISO 17292, for the valves covered under this specification.

8.7 Dimensional and functional checks shall be carried out.

#### 9.0 GALVANIZING REQUIREMENT (FOR CARBON STEEL):

Carbon steel valve bodies and all other carbon steel valve parts including handle lever & lever adopter shall be degreased, thoroughly cleaned, pickled & rinsed as specified in IS: 2629. Then all these carbon steel body valves & parts shall be hot dip galvanized as per IS: 2629. The minimum thickness of galvanizing shall be 50 microns

#### 10.0 CLEANING, PROTECTION AND PACKING FOR DESPATCH:

10.1 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.

10.2 The valve shall be dispatched in total assembled form.

10.3 Body ends shall be suitably sealed to protect them against damage during transit and storage.

10.4 Valves with screwed and socket welding ends shall be protected by means of polythene caps/ rubber and protectors to prevent damage of ends & also to avoid foreign material entering the valve while shipment & storage.

10.5 A thin sheet steel circular blanking plate of a diameter 6mm less than the bolt holes inner P.C.D. shall be firmly fixed to the flange faces by the application of adhesive after first ensuring that the flanges faces have been thoroughly degreased. A thin coat of adhesive shall be applied to the flange face and the blanking plate and then allowed to dry for 15-20 minutes. The coated face of the blanking plate should then be offered up to the face of the flange taking care that the plate is concentric with the flange. Firm pressure shall be applied to ensure intimate contact between plate and flange. A wooden blank should then be bolted to the flange using a minimum of 4 bolts.

10.6 Valve Tag Nos. shall be incorporated in all the dispatch documents.

10.7 Proper care shall be taken to avoid damage to the painted surface during transit.

10.8 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.

10.9 Vendor to provide the following:


- Photographs (soft) of valves duly placed inside the wooden box just before final packing.
- Photographs (soft) of the wooden box in which the valves have been finally packed just before dispatch.

Clearance for dispatch of valves will be given only after receiving the photos of valves in satisfactory condition as mentioned in the conditions stated above.

#### 11.0 SPARES

a) **Mandatory Spares:** As per Data Sheet A

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

	<b>SPECIFIC TECHNICAL REQUIREMENTS FOR BALL VALVES 1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION NO: PE-TS-415-100-M004
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## 12.0 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.

## 13.0 DOCUMENTS TO BE SUBMITTED AFTER AWARD

### 13.1 Category-A:

- 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.
- b. Quality plan duly signed and stamped.

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


### 13.2 Category-B:

NIL

## 14.0 EXCLUSIONS:


The following are excluded from the bidder's scope:


- a. Counter flanges and their nuts and bolts.
- b. Erection & Commissioning of equipment at site.

	<b>TECHNICAL SPECIFICATION</b> <b>BALL VALVES</b> <b>1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION No.: PE-TS-415-100-M004	
		SECTION: II	
		REV. No.: 00	DATE: 29.11.2021
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## SECTION-II


- DATA SHEET – A
- QUALITY PLAN
- COMPLIANCE SHEET

		<b>DATA SHEET- A</b> <b>BALL VALVES</b> <b>1X660 MW BHUSAWAL TPP UNIT 6</b>								SPECIFICATION NO.: PE-TS-415-100-M004									
										SECTION: II									
										REV. NO.: 00 DATE: 29.11.2021									
										SHEET 1 OF 2									
1	2	3	4	5		6	7	8	9	10	11	12		13	14			15	
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 THK		MAIN VALVES QTY (WITHOUT COMMISSIONING SPARES) NOS.	COMMISSIONING SPARES (SETS)			MANDATORY SPARES (COMPLETE ASSEMBLY WITHOUT COMMISSIONING SPARES) NOS.
					PRESSURE KG/CM <sup>2</sup> (G)	TEMP (DEG °C)							MM	MM		BODY SEAL	STEM WASHER	STEM SEAL	
1	IA-71 to IA-155 Contingency. Valve-15 nos.	Ball	15	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL. 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	21.3	3.2	100	10	10	10	5
2	SA-41 to SA-97, IA-41 to IA-65 Contingency. Valve-18 nos.	Ball	25	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL. 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	33.4	4.0	100	10	10	10	5
3	SA-21 to SA-32 IA-21 TO IA-30 Contingency. Valve- 5 nos.	Ball	50	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL. 800 OF ISO 17292	FORGED STAINLESS STEEL AS PER ASTM A182 F304	SS 316	SOCKET WELDED AS PER ASME B 16.11	EXTENDED PIECE ON BOTH SIDES	60.8	4.0	27	3	3	3	2
4	SA-11 to SA-14, IA- 11 to IA-13 Contingency. Valve-3 no.	Ball	80	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL.150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	88.9	4.8	10	2	2	2	2
5	SA-1 To SA-3, IA-01 TO IA-03 Contingency valve- 2 nos	Ball	150	MAN	8	50	INSTRUMENT AIR & SERVICE AIR SYSTEMS	CL.150 OF ISO 17292	CAST STAINLESS STEEL AS PER ASTM A351 CF8M	SS 316	FLANGED AS PER ASME B 16.5 R/F	-	166.5	5.4	8	2	2	2	2
<b>NOTES:-</b> 1. IA - INSTRUMENT AIR, MAN - MANUAL, SA - SERVICE AIR 2. COMMISSIONING SPARES FOR BALL VALVES:- ONE SET CONSISTS OF BODY SEAL, STEM WASHER & STEM SEAL. 3. FOR MATERIAL OF CONSTRUCTION REFER SHEET 2 OF 2. 4. MAIN VALVE PRICES SHALL BE EXCLUSIVE OF COST OF COMMISSIONING SPARES PRICES. 5. BIDDER IS REQUIRED TO QUOTE UNIT PRICE OF EACH ITEM UNDER COMMISSIONING SPARES SEPARATELY & INDIVIDUALLY i.e. PRICES OF ALL COMMISSIONING SPARES SHALL NOT BE CLUBBED/ INCLUDED IN THE UNIT PRICE OF MAIN VALVES.												TOTAL	245	27	27	27	16		

	<b>DATA SHEET-A</b> <b>BALL VALVES</b> <b>1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION No.: PE-TS-415-100-M004	
		SECTION: II	
		REV. No.: 00	DATE: 29.11.2021
		SHEET 2 OF 2	

### Materials of Construction

SL. No.	PART NAME	MATERIAL (STAINLESS STEEL BODY)
1	BODY AND END PIECES	FORGED STAINLESS STEEL AS PER ASTM A 182 Gr. F304 (UPTO 50 NB)  CAST STAINLESS STEEL AS PER ASTM A 351 Gr. CF8M (ABOVE 50 NB)
2	BALL, STEM AND GLAND	STAINLESS STEEL AS PER AISI 316 (BALL MIRROR FINISH)
3	SEAT RING	VIRGIN UNFILLED OIL FREE PTFE (Non-Asbestos Type)
4	BODY SEAL, STEM SEAL AND GLAND PACKING	VIRGIN UNFILLED OIL FREE PTFE (Non-Asbestos Type)
5	BODY STUD	AISI 316
6	BODY NUT	AISI 316
7	GLAND NUT	AISI 316
8	LEVER	AISI 316 WITH PLASTIC SLEEVE GRIP
9	LEVER ADOPTER	AISI 316
10	STOPPER PIN	AISI 316
11	STEM WASHERS	SPRING STEEL
12	NAME PLATE (FOR VALVE TAG No.)	SS 316 (2 MM THICK)
13	PAINTING	NO PAINTING NEEDS TO BE DONE AS ALL PARTS OF STAINLESS STEEL.

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		<b>QUALITY PLAN</b>					SPEC. NO.: PE-TS-415-100-M004		DATE: 02-01-2021		
			CUSTOMER : M/S MAHAGENCO					QP NO.: PE-QP-415-100-M006		DATE: 02-01-2021		
			PROJECT: 1x660 MW BHUSAWAL TPS UNIT-6					PO NO.: LATER		DATE:		
			ITEM: FSS BALL VALVES (SIZE 15 TO 50NB / CLASS 800) & CSS (SIZE 65 TO 200 NB/ CLASS 150)			SYSTEM: INSTRUMENT & SERVICE AIR		SECTION: II		SHEET 1 OF 3		
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	*	**	
					M	C/N			D	M	C	N

**1.0 MATERIALS**

1.1	BODY, END PIECES BALL, SPINDLE, GLAND, LEVER, FASTENERS	1. PHYSICAL, CHEMICAL PROPS.	MA	PHYSICAL, CHEM. TESTING	ONE PER BATCH/ LOT/ HEAT	APPD. DRG. / REL. STD.	APPD. DRG./ REL. STD.	MILL T.C.	√	P/W	V	V	CORELATION REQD. FOR BODY & END PIECES W.R.T. HEAT Nos.
		2. HEAT TREATMENT	CR	REVIEW OF H.T. RECORDS	100%	-DO-	-DO-	H.T. INTERNAL INSPN. RECORDS	√	P/W	V	V	
		3. SURFACE DEFECTS	MA	VISUAL	100%	MSS-SP-55	FREE FROM DEFECTS	INSPN. REPORT	√	P/W	V	V	
1.2	BODY, END PIECES	1. SURFACE DEFECTS	CR	PENETRANT TEST	100%	ASTM E 165	ANSI B 16.34	TEST REPORT	√	P/W	V	V	APPLICABLE ONLY FOR SS CASTINGS.


**2.0 IN PROCESS INSPECTION**

2.1	MACHINING OF ALL COMPONENTS	1. DIMENSIONS	MA	MEASUREMENT	100%	MFG. DRG.	MFG. DRG.	LOG BOOK	-	P/W	-	-	
		2. SURFACE FINISH	MA	VISUAL	100%	MFG. DRG.	MFG. DRG.	LOG BOOK	-	P/W	-	-	
		3. HARDNESS (FOR BALL AND SPINDLE)	MA	HARDNESS TESTING	100%	APPD. DRG. / REL. STD.	APPD. DRG. / REL. STD.	T.C.	√	P/W	V	V	
		4. SURFACE DEFECTS	CR	PENETRANT TEST	100%	ASTM E 165	ANSI B16.34	T.C.	√	P/W	V	V	FOR BALL, SPINDLE SEATS & MACHINED SURFACES.





**3.0 BEFORE GALVANISING - SHELL TEST FOR PRESSURE PARTS (FOR CS VALVES ONLY)**

3.1	BODY, END PIECES (PRESSURE PARTS)	LEAK TIGHTNESS	CR	HYDRAULIC TEST	100%	APPD. DRG.	NO LEAKAGE	T.C.	√	P/W	V	V	
4.0	HOT DIP GALVANIZING OF CARBON STEEL BODY, END PIECES AND ALL OTHER CARBON STEEL VALVE PARTS	1. FREEDOM FROM SURFACE DEFECTS	MA	VISUAL	100%	IS:2629	IS:2629	INSPN REPORT	√	P/W	V	V	
		2. UNIFORMITY IN THICKNESS	MA	THICKNESS	VALVE BODY AT RANDOM	IS:2629	IS:2629	INSPN REPORT	√	P/W	V	V	THICKNESS 50 MICRONS ( MIN.) TO BE CHECKED WITH ELCOMETER.
		3. ADHESION	MA	KNIFE TEST	-DO-	IS:2629	IS:2629	INSPN REPORT	√	P/W	V	V	

<b>BHEL</b>				<b>BIDDER/ SUPPLIER</b>				<b>FOR CUSTOMER REVIEW &amp; APPROVAL</b>							
<b>ENGINEERING</b>		<b>QUALITY</b>		Sign & Date		Seal		Doc No:		Sign & Date		Name		Seal	
Prepared by:	ANUJ AWASTHI	Name	Anuj Awasthi	Checked by:	Ashish Panigrahi	Sign & Date	Ashish Panigrahi	Reviewed by:	Prince Malik	Reviewed by:	RITESH KUMAR JAISWAL	Approved by:	Prince Malik	Seal	

	MANUFACTURER/BIDDER/VENDOR NAME & ADDRESS		<b>QUALITY PLAN</b>					SPEC. NO.: PE-TS-415-100-M004		DATE: 02-01-2021		
			CUSTOMER : M/S MAHAGENCO					QP NO.: PE-QP-415-100-M006		DATE: 02-01-2021		
			PROJECT: 1x660 MW BHUSAWAL TPS UNIT-6					PO NO.: LATER		DATE:		
			ITEM: FSS BALL VALVES (SIZE 15 TO 50NB / CLASS 800) & CSS (SIZE 65 TO 200 NB/ CLASS 150)			SYSTEM: INSTRUMENT & SERVICE AIR		SECTION: II		SHEET 2 OF 3		
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	*		REMARKS
					M	C/N				D	**	
										M	C	N


<b>5.0</b>	<b>ASSEMBLY OF ALL VALVE</b>													
5.1	BALL AND SEAT	MIRROR FINISH (BALL)	CR	BUFFING/ GRINDING/ MACHINING	100%	THE SURFACE SHALL BE SMOOTH AND SHALL HAVE UNIFORM CONTACT WITH SOFT SEAT		LOG BOOK	√	P/W	V	V		
<b>6.0</b>	<b>FINAL TESTING</b>													
6.1	ASSEMBLY	1. DIMENSIONS	MA	MEASUREMENT	100%	REFER NOTE-2	APPD. DRG.	APPD. DRG.	INSPN. REPORT	√	P/W	W	V	
		2. OPENING/ CLOSING	MA	OPERATION	100%		SMOOTH OPERATION OF VALVE	SMOOTH OPERATION OF VALVE	-DO-	√	P/W	W	V	
		3. APPEARANCE: WORKMANSHIP, ORIENTATION, MARKING, TAG No.	MA	VISUAL	100%		APPD. DRG.	APPD. DRG.	INSPN. REPORT	√	P/W	W	V	
6.2	BODY	1. LEAK TIGHTNESS	CR	HYDRAULIC TEST	100%		APPD. DRG.	BS EN ISO 17292	TEST CERT.	√	P/W	W	V	
6.3	SEAT	1. LEAK TIGHTNESS	CR	-DO-	100%		-DO-	-DO-	-DO-	√	P/W	W	V	
		2. LEAK TIGHTNESS	CR	PNEUMATIC TEST	100%		-DO-	-DO-	-DO-	√	P/W	W	V	
6.4	COMMISSIONING SPARES	WORKMANSHIP & SUITABILITY	MA	VISUAL	100%	100%	-DO-	APPD. DRG.	INSPN. REPORT	√	P/W	W	V	
<b>7.0</b>	PACKING	SOUNDNESS OF PACKING	MA	VISUAL	100%	100%	APPD. DRG. / PACKING PROCEDURE (IF APPLICABLE)	APPD. DRG. / PACKING PROCEDURE (IF APPLICABLE)	INSPN. REPORT	√	P/W	W	-	REFER NOTE-3.

BHEL					
ENGINEERING			QUALITY		
	Sign & Date	Name		Sign & Date	Name
Prepared by:	 ANUJ AWASTHI	Anuj Awasthi	Checked by:	 Ashish Panigrahi	Ashish Panigrahi
Reviewed by:	 Prince Malik	Prince Malik	Reviewed by:	 RITESH KUMAR JAISWAL	RK Jaiswal

BIDDER/ SUPPLIER	
Sign & Date	
Seal	

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







	<b>MANUFACTURER/BIDDER/VENDOR NAME &amp; ADDRESS</b>		<b>QUALITY PLAN</b>					SPEC. NO.: PE-TS-415-100-M004		DATE: 02-01-2021	
			CUSTOMER : M/S MAHAGENCO					QP NO.: PE-QP-415-100-M006		DATE: 02-01-2021	
			PROJECT: 1x660 MW BHUSAWAL TPS UNIT-6					PO NO.: LATER		DATE:	
			ITEM: FSS BALL VALVES (SIZE 15 TO 50NB / CLASS 800) & CSS (SIZE 65 TO 200 NB/ CLASS 150)			SYSTEM: INSTRUMENT & SERVICE AIR		SECTION: II		SHEET 3 OF 3	
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	** M C N	
					M C/N						


**NOTES:**

- In case of foreign supplier, all test certificates shall be furnished by the supplier, duly witnessed/verified by supplier's TPIA.
- 10% or min. 2 nos. at random by BHEL/Customer & 100% by supplier for each type, size & rating.
- Following to be noted for packing:
  - Material shall be packed suitably in order to avoid damage of paint and valve during transit and also during storage at site in tropical climate conditions for a period of 15-18 months.
  - Photographs of the packing (with LR No.) just before dispatch for information of PEM.
- BHEL reserves the right for conducting repeat tests, if required.
- Welding and Impregnation of casting are not permitted.
- The latest revision/year of issue of all the standard indicated in the QP shall be referred.
- All materials shall be as per Approved drgs/ Data sheet for valves.

**LEGENDS:**

- \*: Records, identified with "Tick"(✓) shall be essentially included by supplier in QA Documentation.
- \*\* M: Supplier/ Manufacturer/ Sub-Supplier      C: Main Supplier/BHEL/ Third Party Inspection agency
- P: Perform      W: Witness      N: Customer
- MA: Major Characteristic      MI: Minor Characteristic      V: Verification
- MTC: Mill Test Certificate      PT: Penetrant Test      CR: Critical Characteristic
- D: Documentation      NDT: Non Destructive Testin      UT: Ultrasonic Test

<b>BHEL</b>					<b>BIDDER/ SUPPLIER</b>		<b>FOR CUSTOMER REVIEW &amp; APPROVAL</b>			
<b>ENGINEERING</b>			<b>QUALITY</b>		Sign & Date		Doc No:			
Prepared by:	Sign & Date	Name	Checked by:	Sign & Date	Name	Seal	Reviewed by:	Sign & Date	Name	Seal
		Anuj Awasthi	Ashish Panigrahi		Ashish Panigrahi					
Reviewed by:		Prince Malik	RITESH KUMAR		RK Jaiswal		Approved by:			
				JAISWAL						

	<b>COMPLIANCE SHEET</b> <b>BALL VALVES</b> <b>1x660 MW BHUSAWAL TPS UNIT-6</b>	SPECIFICATION NO. PE-TS-415-100-M004	
		SECTION : II	
		REV. NO.: 00	DATE: 29.11.2021
		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 the technical deviation sheet of GCC. Deviations listed in technical deviation sheet shall only be considered.**

**Name of Bidder / Authorized Representative: -**

-----

**Designation: -**

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**Signature: -**

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**Company Seal: -**

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**Date: -**

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