
	<b>TITLE:</b>  <b>SCOPE OF ENQUIRY</b>	SPECIFICATION NO. PE-TS-999-100-M009	
		REV. NO.: 00	DATE: 22/04/2010
		SHEET 1 OF 1	

1. This specification covers the Design, Manufacture, Inspection & Testing at vendor's and/or his sub-vendor's works, proper packing and delivery to site of SPRING LOADED BYPASS VALVES as per requirements mentioned in data sheets & specification for YERMARUS 2X800 MW STPP.
2. It is not the intent to specify herein all the details of design and manufacture. However the equipment shall conform in all respects to high standards of design, engineering and workmanship and shall be capable of performing the required duties in a manner acceptable to purchaser, who will interpret the meaning of drawing and specification and shall be entitled to reject any work or material, which in his judgment is not in full accordance herewith.

	<b>TITLE:</b>  <b>PRE QUALIFICATION REQUIREMENTS</b>	SPECIFICATION NO. PE-TS-999-100-M009	
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1. The vendor shall have designed, manufactured and supplied the product for which it intend to get registered for two (2) installations in power plants, refinery, steel plant, fertilizer or any other process industry in last seven years.
2. The product supplied in the two installations must have been in satisfactory operation for two years as on date of submission of request for registration. The vendor shall submit user certificates from these installations in respect of satisfactory operation of the product. Two repeat orders from same client for same product will be considered as certificates for satisfactory working of the product.

Or

In lieu of above, successful execution of two major order in NTPC / EIL / NPCIL / PGCIL / DVC or any other major utility in power sector, in last two years can be considered for qualification.

3. The vendor shall be OEM supplier of the product. Authorized agent/stockiest/dealer with proven track record will be considered only for certain non critical items in case they satisfactorily comply to various requirements of quality system and documentations. However, the items shall be of the approved make only in such a case.
4. The vendor shall have well established quality systems in the company and shall be able to demonstrate the implementation of same. ISO certification in this regard shall be considered for preference.
5. The vendor should have facilities for carrying out following tests as applicable to the product for which it is seeking registration.
  - Availability of routine and type test certificate as per applicable standards or testing facilities for same.
  - Hydro/Pneumatic testing.
  - Material testing facilities for physical and chemical properties.
  - Dye Penetration and Radiographic testing.
  - Performance testing of equipment at full load or part load in accordance with relevant standards/codes.
  - Static/Dynamic Balancing of the rotating equipment.
  - Noise and vibration testing.
  - Water absorption test.
  - Any other test as applicable to the product(as per specific requirement).

In case the vendor do not have the above testing facilities, he shall have a permanent tie up for the testing with any Govt. approved lab or Test House.

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6. For items requiring involvement of welding processes, the vendor shall have qualified welders as per requirement.
7. Following facilities even though not mandatory will be considered essential for the items in which they are applicable.
  - Galvanizing and plating
  - Rubber lining
  - Casting/Forging and heat treatment
  - Blast cleaning and Painting

In case the vendor does not have the above in-house facilities, he shall have a permanent tie up for these with other approved facility carrying out above activities.

8. Product specific requirements are separately defined below and the vendor will have to meet these to be considered eligible for registration.

**YERMARUS 2X800 MW STPP****BOM FOR SPRING LOADED BYPASS VALVES**

DESCRIPTION OF ITEM	QUANTITY (NOS.)	
	MAIN VALVES	MANDATORY SPARES (COMPLETE ASSEMBLY)
1. FDV-42 & FDV-43 (EACH 2 NOS)	4	NIL

<b>BHEL PEM</b>	DOCUMENT TITLE	DOCUMENT PE-DC-362-100-N300 NUMBER
	<b>DATA SHEET FOR SPRING LOADED BYPASS VALVE ACROSS HP HEATERS</b>	REVISION 00 DATE 19-02-2011 NUMBER
	<b>2 x 800 MW YERMARUS STPS</b>	SHEET 1 OF 1

**1.0 GENERAL DESCRIPTION**

Two banks of HP Heaters of 50% capacity on feed water side are installed in the regenerative feed cycle i.e. HPH-6A / 7A/ 8A & HPH 6B / 7B/ 8B. Each heater bank is provided with motor operated gate valves at the inlet & outlet. The two (2) feed water bypass lines, of 50% capacity each, are provided across HP Heater banks with spring loaded bypass valve (SLBV) FDV-42 & FDV-43 for facilitating individual as well as both heater banks isolation due to any operational problem. Each SLBV is sized to pass flow as per the data given below and works on differential pressure across the valve.

**TECHNICAL REQUIREMENTS**

1.	Quantity	:	2 nos. Tagged <b>FDV-42 &amp; FDV- 43</b>
2.	Type	:	Globe type spring loaded bypass valve.
3.	Size of valve	:	To be decided by bidder based on sizing data.
4.	a) End connection b) Connecting pipe size c) Connecting pipe material	:	Butt welded. OD 457 mm x 62 mm Thk. SA 106 GrC
5.	No. of Heater banks.	:	2 nos.
6.	Pressure drop across each heater bank.	:	3.8 kg/cm <sup>2</sup> at 1168 T/Hr
7.	Operating conditions	:	FDV-42: valve shall pass 1168 T/Hr of feed water at 193 °C & 290 kg/cm <sup>2</sup> (a). Set pressure 4.2 kg/cm <sup>2</sup> . Fully opens at 10% over pressure.  FDV-43: valve shall pass 1168 T/Hr of feed water at 193 °C & 290 kg/cm <sup>2</sup> (a). Set pressure 4.6 kg/cm <sup>2</sup> . Fully opens at 10% over pressure.
8.	Set pressure range	:	Each valve shall be adjustable for opening when differential pressure settings are 3.5 to 5.0 kg/cm <sup>2</sup> .
9.	Design pressure and temperature	:	350 kg/cm <sup>2</sup> (g) and 300 °C
10.	Valve body Material	:	ASTM A216 WCC
11.	Regulatory requirement	:	IBR certificate in form IIIC

**2.0 Testing, Mandatory spares and all other general requirements shall be as per contract.**

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### **SPECIFIC TECHNICAL REQUIREMENTS**

- 1.0** The technical requirements for Spring loaded bypass valve, in general, shall be as per attached Specification No. PE-SS-999-100-M009. The specific technical requirements given in this section are specific to the project(s) and shall prevail/ over-ride the corresponding technical requirements specified in Spec. No. PE-SS-999-100-M009 in case of any contradiction

### **2.0 SCOPE OF SUPPLY**

Following Spring Loaded Bypass Valves as specified in the Data Sheet (Doc. No. PE-DC-362 - 100-N300) & BOM attached along with this specification.

#### **2.1 SPARES**

##### **2.1.1 COMMISSIONING SPARES**

Commissioning Spares for each valve shall be supplied as mentioned below:

- a) Bonnet Gasket- 1 No.
- b) Cap Gasket - 1 No.

##### **2.1.2 MANDATORY SPARES**

NIL.

##### **2.1.3 RECOMMENDED SPARES**

An offer of recommended spares for valves for 3 years operation shall be submitted with unit rates indicating the recommended items name (other than the above mentioned commissioning spares) and their quantity with validity of 1 year. Purchaser shall have the option to modify the list as per the requirements. Bidder shall guarantee to supply recommended spare parts for the offered valves up to 25 years after commissioning of the plant.

**2.2** Quality Plan for the above items shall be same as applicable for main valve.

- 3.0** Bidder to indicate the international design and testing standards/codes applicable for offered valves.
- 4.0** Special tools & tackles required for handling, maintenance & erection of the valve shall also be offered by the bidder.
- 5.0** Materials of construction various components of valves shall be as below

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SNO	COMPONENT	MATERIALS
1	BODY, BONNET, CAP	ASTMA216GrWCC
2	STEM	ASTMA182 Gr F6a
3	SPRINGS	ALLOY STEEL
4	BODY SEAT	ASTMA 105 Hard Faced (Stellite or Equivalent)
5	BONNET BUSH & LOCK NUT, ADJUSTING SCREW	PHOSPHER BRONZE (ASTM B139 / BS1400)
6	BOTTOM & TOP SPRING PLATE	STAINLESS STEEL (BS970-420 / ASTM276-420)
7	BODY & CAP STUD	ASTMA193 Gr B7
8	BODY & CAP NUT	ASTMA 194 Gr 2H
9	BONNET & CAP GASKETS	SPIRAL WOUND GASKETS
10	VALVE HEAD	NICKLE CHROME ALLOY/ Seating Surface Hard Faced (Stellite or Equivalent)
11	VALVE GUIDE	NICKLE CHROME ALLOY

#### 6.0 **INSPECTION OF VALVES**

6.1 The attached Quality Plan indicates minimum requirements of inspection & testing. Bidder is required to submit a signed copy of this QP along with their technical bid/ offer, as a token of their acceptance. However bidder to note that the successful bidder shall finalize this QP with customer after award of the contract without any additional commercial implications.

6.2 Valves are under the purview of INDIAN BOILER REGULATIONS (IBR). Hence **IBR Form III** shall be furnished in line with clause 7.3 of spec No. PE-SS-999-100-M009

7.0 Requirements of drawings/documents to be furnished by successful bidder after award of contract/LOI within 15 days of issue of LOI / P.O.

- |   |             |
|---|-------------|
| a. Drgs/documents for approval  | - 2 copies  |
| b. Approved final drgs/documents  | - 12 copies |
| c. Quality plan for approval  | - 2 copies  |
| d. O & M Manual   | - 12 copies |
| e. Material Test certificates/Reports   | - 6 copies  |
| f. Compact Disc (CD) containing all final approved drgs./Documents/ Quality Plans and O & M Manuals | -1 No       |

8.0 Bidders to submit technical offer along with technical details/information, drgs & documents etc as indicated at clause 14.0 of the attached Specification No.: PE-SS-999-100-M009. Bidders to note that their offer will not be evaluated in the absence above mentioned documents/ details.


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- 9.0 Requirements of drawings/documents to be furnished by successful bidder after award of contract/LOI are shall be as listed below. First submission of GA drgs, QP, Actuator Data Sheet & wiring diagram, torque calculations, testing procedures, works/ plant standards etc. requiring approval shall be submitted within 15 days from LOI.

SL. NO.	DOCUMENT	NO OF COPIES	
		FOR APPROVAL	AFTER APPROVAL
1.	SUBMISSION OF GA DRGS./ DOCS ( SUCH AS ACUATOR DATA SHEET, POD TEST PROCEDURES ETC.) EACH TIME FOR APPROVAL	7 PRINTS + SOFT COPY	--
2.	SUBMISSION OF FINALLLY APPROVED DRGS & DOCS	---	30 PRINTS + 3 SETS OF CD ROM.
3.	DATA SHEETS, DESIGN CALCULATIONS. ELECTRICAL LOAD LIST ETC.	4 PRINTS + SOFT COPY	--
4.	MATRIALS TEST CERTIFICATES, TEST REPORTS, IBR CERTIFICATES ETC.	--	1 No. original +3 copies
5.	QUALITY PLANS	7 PRINTS + SOFT COPY	--
6.	O & M MANUALS  DRAFT FINAL	2 COPIES --	-- 30 COPIES + 3 SETS OF CD ROM

**\* TOTAL 3 NOS CD-ROM ( EACH CD-ROM WILL CONTAIN DOCUMENTS AT SL. NO. 2 AND 6 ABOVE.)**



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		VOLUME . II B	
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## 1.0 GENERAL & SCOPE

- 1.1 This specification covers the design, material, construction features, manufacture, inspection & testing, Painting and packing requirements of Spring Loaded Bypass Valves at vendors or/and his sub vendors works and delivery to project site. The specific Technical requirements of a particular project are listed in attached Annexure-A (Sec- C) and shall prevail over this Sec- D.

- 1.2 SCOPE OF SUPPLY:- All Spring Loaded Bypass valves shall be supplied as specified in the "Requirements of Spring Loaded Bypass Valve" / "Data sheet for Spring loaded bypass valves attached as Annexure-A (section 'C') of this specification.

### 1.2.1 COMMISSIONING SPARES

The above mentioned Data Sheet for spring loaded bypass valves (refer 1.2 above) indicate only the actual technical parameters, however, the Commissioning Spares to be supplied along with Main Valves, shall be, as specified in the attached Annexure-A/ Sec-C of this specification (Vol IIB).

Commissioning spares, for each main valve, comprise of one set of gasket, one set gland packing for main valve. These commissioning spares are required at site during erection & commissioning of these valves. The bidders are also required to quote separately the Unit rates of these Commissioning Spares for future ordering by BHEL.

### 1.2.2 RECOMMENDED SPARES

An offer for Recommended Spares for Spring loaded bypass Valves with part name & qty, as recommended by the bidder for 3 years operation shall be submitted with unit rates with a validity for 1 years (Base firm price+PVC).

Bidders to submit list of these Recommended Spares for valves (other than above mentioned commissioning spares) indicating clearly the valve part name & its Qty of each spare part, as recommended by the bidder, for 3 years operation. The details of these Recommended Spares are required by BHEL/Customer for future ordering.

## 2.0 STANDARDS:


The valves covered under this specification shall be of manufacturer's own design and shall meet the required technical details as mentioned in Data sheets. However BS:759 shall be referred to wherever applicable.

## 3.0 DESIGN CONDITIONS:

The valves covered under this specification shall have the temperature and pressure ratings such as to meet the maximum working conditions as stipulated in the valve data sheets. The operational requirement and special features shall also be as per valve data sheet.

## 4.0 CONSTRUCTION FEATURES:

- 4.1 Type of the valve and materials of construction of body and trim shall be as specified in valve Data sheet.
- 4.2 The seat and disc shall be easily removable and shall be suitable for easy relapping.
- 4.3 Valves shall have pressure seal bonnet / bolted bonnet construction and the adjusting screw shall be covered under a cap.
- 4.4 An arrow indicating the direction of flow shall be embossed on the body of the valves.
- 4.5 A metallic (stainless steel plate 2mm thick) nameplate shall be fitted on each valve. Nameplate inscription required for each valve shall be indicated at the contract stage. Inscriptions shall be engraved 1 mm deep filled with enamel paint.
- 4.6 Suitable lifting lugs and eye bolts shall be provided for handling of valve.

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**5.0 MANUFACTURE OF VALVES:**

- 5.1 Particular care shall be taken to ensure that all foundry sand and loose material is properly removed from castings by fettling before the valves manufacture is started.
- 5.2 After the award of the order, all the valves shall be manufactured strictly in line with the technical specification and the standard governing the valves.

**6.0 LUBRICATION:**

- 6.1 Lubrication, if any, required for smooth and easy operation of valves shall be mentioned.
- 6.2 Choice of lubrication shall be based on ambient temperature condition of 50°C.
- 6.3 Type of lubricant to be used and its annual consumption (based on 100 operations per year) shall be indicated by the tenderer.

**7.0 SHOP INSPECTION:**

- 7.1 A standard quality plan indicating our minimum requirements for shop inspection & testing is attached. Vendor to sign a copy of the same and return with there offer as a token of their acceptance which shall form part of the contract.
- 7.2 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
- 7.3 Valves coming under the purview of IBR shall be inspected by Independent Inspecting authority approved by Indian Boiler Board and the test Certificate in IBR Form III-C duly countersigned shall be submitted. The Independent Inspecting Authority proposed by the vendor shall be informed in the offer.
- 7.4 All steel casting and forgings shall be procured by the valve manufacturer from reputed parties and observing strict quality control.


**8.0 SCOPE OF SHOP INSPECTION:**

The scope of Shop inspection shall generally include but not be limited to the following:

- 8.1 Material identification, correlation and certification for important components such as body, bonnet, stem and other trim material as per the governing code.
- 8.2 For the material of components other than those listed under clause 8.1 above, conformance certificate(certifying the materials exactly as per the technical specification of the order/certified contract drawing) shall be furnished by the vendor.

**8.3 NDT REQUIREMENT**

- 8.3.1 NDT requirement of casting, forgings & assembled valves are indicated in quality plan which shall be adopted.
- 8.3.2 Dye-penetrant test on butt welding ends as per ASTM-E-165 shall be carried out on 100% of the valves and the results shall show no defects.
- 8.3.3 Valve trims shall be subjected to magnetic particle/dye penetrant tests after finish machining and hard facing.

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- 8.4 Critical zones of valve castings shall be tested by radiographic Method as per ANSI B16.34.
- 8.5 Dimensional and functional checks shall be carried out as per approved drawings.
- 8.6 Hardness of body/disc faces of valves shall be checked.
- 8.7 Testing of the spring shall be done for stiffness, scragging and dimensions as per BS:759.
- 8.8 Final inspection of assembly shall be done as per approved drawings. Performance test shall be carried out for the valve to check for smooth operation and effectiveness as envisaged in approved drawings/specification/data sheets.
- 8.9 A pre-despatch inspection will be carried out for all materials/components/equipments/assemblies at the end of all shop tests to check for:
- Verification of completeness and acceptance of all previous tests, inspections and checks performed and satisfactory documentation of the same.
  - Check of appearance and cleanliness.
  - Check for identification, painting, preservation and packing.

#### 9.0 TESTS


- 9.1 All the valves shall be tested hydraulically and pneumatically at the pressures as mentioned in the applicable code/standard adopted by the tenderer.
- 9.2 Valves of supplier's approved design shall be hydraulically tested at twice the design pressure as a minimum.
- 9.3 Seat leakage test for valves shall be carried out as per the governing standard. Valves shall show no leakage while testing for seat tightness.
- 9.4 Any other tests required as per the governing standard adopted by the tenderer.

#### 10.0 PAINTING

Valves shall be painted externally after the necessary testing has been carried out. Just before painting valves surface preparation shall be done as per SSPC-SP-3/ power tool cleaning followed by two coats of Heat Resistant Aluminium paint to Indian standard 13183 Grade-I or equivalent. (Total DFT shall be 80 microns)

#### 11.0 CLEANING, PROTECTION & PACKING FOR DESPATCH

- 11.1 Suitable rust preventive shall be applied on machined exposed surfaces.
- 11.2 Valve ends shall be protected from external damage and sealed against the ingress of dirt by means of polythene caps/rubber end protectors.
- 11.3 Valves shall be packed suitably in sea worthy wooden cases in order to avoid damage during transit and also to ensure resistance against corrosion during shipping/ storage at site. ..
- 11.4 Spare parts shall be packed separately and clearly marked. Spares shall also be suitably packed for transit and long storage period at site.
- 11.5 Valve Tag Nos shall also be incorporated in all the despatch documents.

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12.0 Maintenance spares shall be made available for servicing of valves during life span of valves. Commissioning, mandatory (if any) and recommended spares shall be manufactured and tested strictly in conformity with components used in assembly of main valve.

### 13.0 INSTRUCTION MANUALS

13.1 The instruction Manuals shall present the following basic information in practical, completed and comprehensive manner prepared for use by operating and/or maintenance personnel.

- i) Instruction for initial installation.
- ii) Instruction for operation, Maintenance and repair.
- iii) Recommended inspection points and periods of inspection.
- iv) Ordering information for all replaceable parts etc.

13.2 The information shall be organized in a logical and orderly sequence. A general description of the equipment including significant technical characteristics shall be included to familiarize operating and maintenance personnel with the equipment.

13.3 Necessary drawings and/or other illustrations shall be included or copies of appropriate certified drawings shall be bound in the manual. Tests, adjustment and calibration information, as appropriate, shall be included and shall be identified to the specific equipment safety and other warning notices shall be emphasized.

13.4 A parts list shall be included showing part nomenclature, manufacturer's part number and/or other information necessary for accurate identification and ordering of replacement parts.

13.5 Instruction and parts list shall be legible and prepared on good quality papers.

13.6 The instruction manuals shall be securely bound in durable folders.

13.7 If a standard manual is furnished covering more than the specific equipment purchased, the applicable model should be identified.

13.8 The instruction manual shall include the list of spare parts that have been procured along with the equipment.

13.9 The instruction manual shall include list of all special tools and tackle supplied along with complete drawings and instructions for use of such tools and tackles.


13.10 The instruction manual will require approval of purchaser in the same manner as that for drawings.

### 14.0 INFORMATION/DOCUMENTS TO BE FURNISHED ALONGWITH THE OFFER.

14.1 The offer must be submitted in required Number of copies along with the following documents.

14.1.1 Relevant drawings for the offered valve showing following information:

- i) Standard governing the valve, design pressure/temperature, rating.
- ii) Complete cross sectional arrangement of the valve.
- iii) Binding dimensions, dismantling clearances and weights.

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- iv) Bill of material incorporating all the materials of construction of various parts along with BS/ASTM standards to which the materials conform to.
- v) Special features, if any, as called for in the specifications.
- vi) Differential pressure for valves when starting to open and when fully open.
- vii) Hydraulic/air test pressure for body/seat and duration of test.
- viii) Anchoring arrangement.
- ix) Valve sizing calculations to justify seat area selected.

14.1.2 Manufacture's descriptive and illustrative literature on the type of valve offered.

14.1.3 Standard to which the hydraulic and other test shall comply.

14.1.4 Discharge capacity of the valve at various set pressures.

14.1.5 Operation and maintenance manual for valves.

14.2 "Quality Plan" as referred to at 7.0 above (to be submitted in QP format duly signed & stamped.

14.3 It is also pointed out that the offer submitted without the documents requested above shall be considered as incomplete and shall be ignored for the purpose of technical evaluation.

#### 15.0 DEVIATIONS

The tenderer is required to submit a detailed list of deviations, if any. In the absence of any deviation list from the tenderer, his compliance on all the above specifications will be presumed by the purchaser.

<b>QUALITY PLAN</b>				CUSTOMER:		PROJECT:		SPEC. NO. : PE-TS-999-100-M009	
SHEET 1 OF 3				BIDDER/VENDOR		QP NUMBER: PE-QP-999-139-M012		SPEC. TITLE : TECH. SPEC. SLBV	
COMPONENT/ OPERATION		CHARACTERISTICS CHECKED	SYSTEM	CATE- GORY	TYPE/METHOD OF CHECK	FEED WATER	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS
S.N.O.								FORMAT OF RECORD	AGENCY
									P W V
									REMARKS

S.N.O.	COMPONENT/ OPERATION	CHARACTERISTICS CHECKED	SYSTEM	CATE- GORY	TYPE/METHOD OF CHECK	FEED WATER	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	TEST CERT	3/2	2	1	REMARKS
1.0	MATERIALS													
1.1	BODY, BONNET, CAP, SPINDLE, DISC, BODY SEAT, SPRING PLATES, FASTENERS	1. PHYSICAL, CHEMICAL PROPERTIES 2. DIMENSION 3. HEAT TREATMENT 4. SURFACE DEFECTS	MA	MA	PHYSICAL, CHEMICAL TESTS MEASUREMENT HT CHART REVIEW VISUAL	ONE/HEAT / HEAT BATCH	100% 100% 100%	APPROVED DRG./TECH. SPEC. -DO- -DO- MSS-SP-55	APPROVED DRG./TECH SPEC -DO- -DO- MSS-SP-55	TEST CERT -DO- HT CHART INSPN. REPORT	3/2 3/2 3/2 3/2	2 2 2 2	1 1 1 1	-CORRELATION REQUIRED FOR BODY, BONNET, CAP, DISC, SPINDLE
1.2	BODY, BONNET, CAP, BODY SEAT	1. SURFACE DEFECTS 2. SUB-SURFACE DEFECTS	CR	CR	PT/MT RT/UT	100% 100%	ASTME 165/ASTME 709 ANSI B16.34/TECH SPEC	ASTME 165/ASTME 709 ANSI B16.34/TECH SPEC	ASTME 165/ASTME 709 ANSI B16.34/TECH SPEC	TEST CERT. INSPN REPORT	3/2 3/2	2 2	1 1	-FILM REVIEW FOR RT & WITNESSING FOR UT -CERTIFICATE OF COMPLIANCE TO BE FURNISHED --DO--
1.3	SPRING & VALVE GUIDE	1. PHYSICAL, CHEMICAL PROPERTIES	MA	MA	PHYSICAL, CHEMICAL TESTS	100%	APPROVED DRG./TECH. SPEC.	APPROVED DRG./TECH. SPEC.	APPROVED DRG./TECH SPEC	TEST CERT	3/2	2	1	
1.4	BONNET BUSH & ADJUSTING SCREW	1. CHEM PROPERTIES	MA	MA	CHEM. TESTS	100%	APPROVED DRG./TECH. SPEC.	APPROVED DRG./TECH. SPEC.	APPROVED DRG./TECH SPEC	TEST CERT	3/2	2	1	
1.5	SPRING	1. ENDURANCE 2. SPRING RATE	CR	CR	ENDURANCE TEST LOAD TEST	1/BATCH 1/BATCH	RELEVANT SPEC./BS.759 APPROVED DRG./MFR. STANDARD	RELEVANT SPEC. BS.759 APPROVED DRG./MFR. STANDARD	RELEVANT SPEC. APPROVED DRG./MFR. STANDARD	-DO- -DO-	3/2 3/2	2 2	1 1	
		3. SCRAGGING	CR	CR	FULL DEFLECTION	100%	RELEVANT SPEC.	RELEVANT SPEC.	NO PERMANENT SET IN 10 CYCLES NO DEFECTS	-DO-	3/2	2	1	
		4. SURFACE DEFECTS	CR	CR	PT/MT	100%	ASTME 165/ASTME-709	ASTME 165/ASTME-709	ASTME 165/ASTME-709	-DO-	3/2	2	1	
2.0	IN PROCESS CONTROL													
2.1	MACHINING OF BODY, BONNET,	1. DIMENSIONS	MA	MA	MEASUREMENT	100%	MFG DRG	MFG DRG	MFG DRG.	INSPN. REPORT	3/2	2	1	

<b>BHEL</b>		<b>BIDDER/VENDOR</b>	
PARTICULARS		NAME	
SIGNATURE		DATE	
		BIDDER'S/VENDOR'S COMPANY SEAL	

<b>QUALITY PLAN</b>		CUSTOMER:		PROJECT:		SPEC. NO. : PE-TS-999-100-M009	
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COMPONENT/ OPERATION		CHARACTERISTICS CHECKED	SYSTEM	FEED WATER	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD
S.NO.	2	3	CATE- GORY	TYPE/METHOD OF CHECK	EXTENT OF CHECK	DO- DO-	AGENCY
							P W V
							REMARKS

2.2	CAP, DISC, BODY SEAT, SPINDLE, SPRING PLATE ETC.	2 SURFACE FINISH 3. SURFACE DEFECTS (PRESSURE PARTS) WELD DEPOSIT	MA CR MA	VISUAL PT/MT VISUAL	100% 100% 100%	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	3/2 3/2 3/2	2 2 2	1 1 1	
2.3	SS DEPOSIT ON DISC/BODY SEAT DISC SEAT, BODY SEAT & VALVE GUIDE	1. HARDNESS 2. CONTACT PATTERN (SEATS) 3. SURFACE DEFECTS	MA MA CR	HARDNESS TEST BLUE MATCHING PT/MT	100% 100% 100%	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	3/2 3/2 3/2	2 2 2	1 1 1	
2.4	SPINDLE	1. SURFACE DEFECTS 2. HARDNESS	CR MA	PENETRANT TEST MEASUREMENT	100% 100%	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	3/2 3/2	2 2	1 1	
3.0	ASSEMBLY TESTING	1. DIMENSIONS 2. BODY LEAK TIGHTNESS 3. SEAT LEAK TIGHTNESS 4. SEAT LEAK TIGHTNESS 5. PRESSURE SETTING	MA CR CR CR CR	MEASUREMENT HYDRAULIC HYDRAULIC AIR HYDRAULIC	100% 100% 100% 100% 100%	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	3/2 3/2 3/2 3/2 3/2	2 2 2 2 2	1 1 1 1 1	
4.0	END CONNECTION (FOR B.W. ENDS)	1. DIMENSIONS 2. SURFACE DEFECTS	MA CR	MEASUREMENT PENETRANT TEST	100% 100%	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	-DO- ASTME 165/ ASTME 709 INTERNAL STANDARD APPROVED DRAWING/ TECHNICAL SPEC	3/2 3/2	2 2	1 1	

<b>BHEL</b>		<b>BIDDER/VENDOR</b>	
PARTICULARS		NAME	
SIGNATURE		DATE	
		BIDDER'S/VENDOR'S COMPANY SEAL	

<b>QUALITY PLAN</b>		CUSTOMER:		PROJECT:		SPEC. NO: PE-TS-999-100-M009	
SHEET 3 OF 3		BIDDER/VENDOR		QP NUMBER: PE-QP-999-139-M012		SPEC. TITLE: TECH. SPEC. SLBV	
COMPONENT/ OPERATION		SYSTEM		ITEM: SPRING LOADED BYPASS VALVE		SECTION VOLUME	
CHARACTERISTICS CHECKED		CATE- GORY		REFERENCE DOCUMENT		AGENCY	
				FEED WATER		P W V	
				TYPE/METHOD OF CHECK		REMARKS	
				EXTENT OF CHECK			
				ACCEPTANCE NORMS			
				FORMAT OF RECORD			

5.0	FINAL INSPECTION	CLEANLINESS AND COMPLETENESS	MA	VISUAL	100%	APPROVED DRAWING/ TECHNICAL SPEC.	APPROVED DRAWING/ TECHNICAL SPEC.	INSPN. REPORT	3/2	2	1	
6.0	PAINTING	QUALITY AND THICKNESS OF PAINT	MA	VISUAL & MEASUREMENT	100%	-DO-	-DO-	-DO-	3/2	2	1	
7.0	PACKING	AS PER TECHNICAL SPECIFICATION	MA	VISUAL	100%	TECHNICAL SPEC.	TECHNICAL SPEC.	-DO-	3/2	2	1	

**ABBREVIATIONS**

CR = CRITICAL CHARACTERISTIC      P = PERFORMED BY      W= WITNESSED BY      V = VERIFIED BY  
MA =MAJOR CHARACTERISTIC      1 = PURCAsER (BHEL/CUSTOMER)      2= VENDOR      3 = SUB VENDOR OF THE VENDOR

<b>BHEL</b>	PARTICULARS	BIDDER/VENDOR
	NAME	
	SIGNATURE	
	DATE	
		BIDDER'S/ VENDOR'S COMPANY SEAL





### COMPLIANCE SHEET FOR VALVES

All the 3 sheets to be compulsorily filled & submitted by bidder at the time of submitting the technical offer, without which offer will not be evaluated.

**PROJECT:** YERMARUS 2X800 MW STPP  
**PACKAGE NAME:** SPRING LOADED BYPASS VALVES  
**ENQUIRY NO.:** PE-PI-362-100-6449

**A) SCOPE:** Bidder to tick whichever is applicable.

ANNEXURE-A (Bill of Material)	Quoted Fully	Quoted Partly
1. Main valves		
2. Spares		
a) Commissioning spares		
b) Mandatory spares (If applicable)	NA	NA
c) Recommended spares (If applicable)	NA	NA

**B) Technical Details:** Bidder to tick whichever is applicable.

1.	BHEL Technical Specification-Section-D	Accepted	Not Accepted
2.	Material of construction (If Applicable)- ANNEXURE-A1	NA	NA
3.	ANNEXURE-B (Documentation Requirement)	NA	NA
4.	Quality Plan (s)	Accepted	Not Accepted
5.	Actuator data sheet with wiring diagram (If applicable)	NA	NA
6.	Project specific requirements if specified by BHEL	NA	NA
7.			

**Guidelines for filling the compliance sheet:**

1. If **quoted partly**, the regretted items shall be clearly specified in the sheet-2 & shall be submitted along with this compliance sheet. In case of no regretted items sheet-2 to be filled as **NIL** by bidder.
2. Deviation in the **technical details**, if any, shall be clearly specified in the sheet-3 & shall be submitted along with this compliance sheet. In case of no deviations, sheet-3 to be filled as **NIL** by bidder.



## COMPLIANCE SHEET FOR VALVES

**All the 3 sheets to be compulsorily filled & submitted by bidder at the time of submitting the technical offer, without which offer will not be evaluated.**

REGRETTED ITEMS					
SL. NO	SL. NO. OF ANNEXURE-A	TYPE	SIZE	QTY	REMARKS



## COMPLIANCE SHEET FOR VALVES

**All the 3 sheets to be compulsorily filled & submitted by bidder at the time of submitting the technical offer, without which offer will not be evaluated.**

## TECHNICAL DEVIATION SHEET

SL. NO	NAME OF BHEL SPEC.	CLAUSE NO.	BHEL REQUIREMENTS	COMMENTS/ DEVIATIONS	REMARKS