

**2x500MW NEYVELI NEW TPP**

**VOLUME – IIB**

**TECHNICAL SPECIFICATION**


**FOR**

**AIR RELEASE VALVES**

**SPECIFICATION NO. PE-TS-402-100-M019**



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

	TITLE:	SPECIFICATION NO. PE-SS-999-100-Q001	
	<b>PREAMBLE</b>	VOLUME	
		SECTION	
		REV. NO.	DATE: 26/08/2011
		SHEET 1 OF 1	

1.0 The tender document contains three (3) volumes. The bidder shall meet the requirements of all the three volumes.

1.1 **Volume-I (CONDITIONS OF CONTRACT)**

This consists of four parts as below:-

- Volume-IA : This part contains instructions to bidders for making bids to BHEL.
- Volume-IB : This part contains general commercial conditions of the tender & includes provision that vendor is responsible for the quality of item supplied by their sub-vendors.
- Volume-IC : This part contains special conditions of contract.
- Volume-ID : This part contains commercial conditions for erection & commissioning site work, as applicable.

1.2 **Volume-II TECHNICAL SPECIFICATIONS**

Technical requirements are stipulated in Volume-II which comprises of :-

- Volume-IIA : General Technical Conditions
- Volume-IIB : Technical Specification including Drawings, if any.

1.2.1 **Volume-IIB**

This volume is sub-divided into following sections:-

- Section-A : This section outlines the scope of enquiry.
- Section-B : This section provides "Project Information".
- Section-C : This section indicates technical requirements specific to the contract, not covered in Section-D.
- Section-D : This section comprises of technical specifications of equipments complete with data sheet A, B and C.

**Data Sheet - A** Specifies data and other requirements pertaining to the Equipment.


**Data Sheet - B** Specifies data to be filled by the bidder (Data Sheet-B is contained in Volume-III).

**Data Sheet -C** Indicates data/documents to be furnished after the award of contract as per agreed schedule by the vendor (as applicable).

1.2.2 **Volume-III (TECHNICAL SCHEDULES)**


This volume contains technical schedules and Data Sheets-B, which are to be duly filled by the bidder and the same shall be furnished with the technical bid.

2.0 The requirements mentioned in Section-C / Data Sheets-A of section-D shall prevail and govern in case of conflict between the same and the corresponding requirements mentioned in the descriptive portion in Section-D

	<b>TECHNICAL SPECIFICATION AIR RELEASE VALVES 2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : IIB	
		SECTION:	
		REV. NO.: 00	DATE: 04.09.2014
		SHEET 1 OF 1	


## CONTENTS

SECTION	TITLE
A	SCOPE OF ENQUIRY
B	PROJECT INFORMATION
C	SPECIFIC TECHNICAL REQUIREMENTS
D	STANDARD TECHNICAL SPECIFICATIONS
	<ul style="list-style-type: none"> <li>▪ STANDARD TECHNICAL SPECIFICATION FOR AIR RELEASE VALVES</li> <li>▪ DATA SHEET- A</li> <li>▪ QUALITY PLAN</li> </ul>
	DATA SHEET – C

	<b>TECHNICAL SPECIFICATION AIR RELEASE VALVES</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : IIB	
		SECTION: A	
		REV. NO.: 00	DATE: 04.09.2014
		SHEET 1 OF 1	

## SECTION-A

### SCOPE OF ENQUIRY

	<b>TECHNICAL SPECIFICATION</b> <b>AIR RELEASE VALVES</b> <b>2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : IIB	
		SECTION: A	
		REV. NO.: 00	DATE: 04.09.2014
		SHEET 1 OF 1	


## SCOPE OF ENQUIRY

### 1. SCOPE

This enquiry covers the Design, Manufacture, Inspection & Testing at vendor's and/or his sub-vendor's works, proper packing and delivery to site of Air release valves without isolating gate valve complete with all accessories as per the requirements mentioned in different sections of the specification for **2x500MW NEYVELI NEW TPP**.


### 2. GENERAL TECHNICAL INSTRUCTIONS

- a) 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 Engineer/ Owner, who will interpret the meaning of drawing and specifications, and shall be entitled to reject any component or material, which in his judgement is not in full accordance herewith.
- b) The omission of specific reference to any component/ accessories necessary for the proper performance of Air release valves without isolating gate valve shall not relieve the bidder of the responsibility of providing such facilities to complete the supply of Air release valves without isolating gate valve at quoted prices.
- c) Design/ drawings/ data sheets etc. shall be subject to approval of BHEL as per specification, in the event of order.
- d) BHEL's / customer's representative shall be given access to the shop in which the equipment are being manufactured or tested and all test records shall be made available to him.
- e) The equipment covered under this specification shall not be despatched unless the same have been finally inspected, accepted and shipping release issued by BHEL.

	<b>TECHNICAL SPECIFICATION AIR RELEASE VALVES</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : IIB	
		SECTION: B	
		REV. NO.: 00	DATE: 04.09.2014
		SHEET 1 OF 1	

## SECTION-B


### PROJECT INFORMATION

	<b>TECHNICAL SPECIFICATION</b> <b>AIR RELEASE VALVES</b> <b>2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : IIB	
		SECTION: B	
		REV. NO.: 00	DATE: 04.09.2014
		SHEET 1 OF 1	

### PROJECT INFORMATION


The bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information provided in this section will be for general guidance and shall not be contractually bidding on BHEL/OWNER. All relevant site data/information as may be necessary shall have to be obtained /collected by the bidder.

SITE LOCATION AND CONDITION#		
1	<b>OWNER</b>	NEYVELI LIGNITE CORPORATION LIMITED (NLC LTD.). NEYVELI, CUDDALORE DISTRICT, TAMILNADU STATE, INDIA
2	<b>PROJECT</b>	2x500MW NEYVELI NEW THERMAL POWER PROJECT (NNTPP)
3	<b>OWNER'S CONSULTANT</b>	LAHMEYER INTERNATIONAL (INDIA) PVT. LTD. (LII), GURGAON, NCR, INDIA
4	<b>LOCATION</b>	200 KMS SOUTH OF CHENNAI AND 50 KMS SOUTH-WEST OF CUDDALORE
5	<b>NEAREST RAILWAY STATION</b>	NEYVELI
6	<b>NAME OF RAILWAY</b>	SOUTH EASTERN RAILWAY.
7	<b>ROAD ACCESS/ APPROACH TO SITE</b>	CONNECTED BY CHENNAI - THANJAVUR NH-45C ROAD STATE HIGHWAY CONNECTING CUDDALORE - VIRUDHACHALAM VIA NEYVELI. BOTH NH AND STATE HIGHWAY ROADS ARE WELL CONNECTED TO NLC TOWNSHIP ROADS. THE APPROACH ROAD IS APPROXIMATELY 15 KMS FROM CHENNAI - THANJAVUR NH-45C ROAD.
8	<b>NEAREST AIRPORT</b>	CHENNAI, AT A DISTANCE OF 200 KM
9	<b>NEAREST SEA PORT</b>	CHENNAI, AT A DISTANCE OF 200 KM

	<b>TECHNICAL SPECIFICATION AIR RELEASE VALVES</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : IIB	
		SECTION: C	
		REV. NO.: 00	DATE: 04.09.2014
SHEET 1 OF 1			

## SECTION-C

### SPECIFIC TECHNICAL REQUIREMENTS

	<b>SPECIFIC TECHNICAL REQUIREMENTS AIR RELEASE VALVES 2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		SECTION C	
		REV. NO.: 00	DATE: 04.09.2014
		Sheet 1 of 3	

**1. GENERAL**

- 1.1 The valves shall meet the technical requirements and conform to the standard technical specification and Data sheet A of Section D. In addition, the requirements of this Section-C shall also be complied with. However, wherever the details given in standard technical specification of Section-D and Data sheet A are different, the requirements of Data sheet A shall prevail. Similarly in the event of contradictions between Section –C & Section –D/ Data sheet A, Section –C will prevail.
- 1.2 The technical requirements for valves shall, in general, be as per the attached standard Technical specification for Valves, and Data sheet A of Vol. II B Section D.

**2. SCOPE OF SUPPLY**

- 2.1 The valves complete with all accessories shall be supplied as per Data sheet A of Section D. 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.
- 2.2 ~~Isolating Gate valves as per Data sheet A.~~
- 2.3 Commissioning spares, if any.
- 2.4 Set of special tools and tackles if required for the maintenance, erection etc. of the equipment supplied.
- 2.5 Mandatory spares as applicable depending upon the project requirement.
- 2.6 Finish paints for touch-up painting of equipment after erection at site in sealed containers.
- 2.7 Various drawings, datasheets, operation and maintenance manuals etc., as specified in Data Sheet-C.


**3. 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.

**4. QUALITY ASSURANCE**

The Quality Plans enclosed with this specification specify minimum quality control requirement. During contract stage vendor shall furnish these Quality Plans duly signed & stamped for their compliance. Quality plans shall be approved by BHEL and customer (if necessary). All inspection and testing shall be carried out by BHEL and CUSTOMER (if necessary). In case inspection is by both BHEL and CUSTOMER, then the inspection can be carried out jointly or separately, which will be informed later.


	<b>SPECIFIC TECHNICAL REQUIREMENTS</b> <b>AIR RELEASE VALVES</b> <b>2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		SECTION C	
		REV. NO.: 00	DATE: 04.09.2014
		Sheet 2 of 3	

**5 PAINTING REQUIREMENT:**

1. Valve shall be painted externally after the necessary testing has been carried out.
2. All surfaces to be painted shall be thoroughly cleaned of all grease, oil, loose mill scale, dust, rust and any other foreign matter. Mechanical cleaning by power tool and scrapping with steel wire brushes shall be adopted to clear the surfaces. The surface shall be cleaned by electric or pneumatic tools to St-3 quality.
3. The cleaning shall conform to SA 2.5 of Swedish Standard Institution SIS 055900 i.e. 95% of the surface area is free from all rust, mill scales and visible residues, foreign materials etc.
4. The valves shall be first painted with two (2) coats of primer paint epoxy polyamide resin based red oxide – zinc phosphate each of DFT 35 microns (min.).
5. This shall be followed by one intermediate paint coat (min. DFT/ coat 80 microns) of high build epoxy resin based paint with MIO.
6. Final/ finish paint shall be of two (2) coats of epoxy polyamide enamel suitably pigmented each of DFT/ coat of 30 microns (min.).
7. Total DFT of primer + intermediate paint + finish paint shall not be less than 210 microns.
8. Colour shade of finished/ final paint shall be sea green as per shade no. 217 of IS 5.

**6 PACKING INSTRUCTIONS:**

- 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) Discs of all valves shall be properly secured while dispatching so that there is no risk of damage to the disc & seat.
- d) Body ends shall be suitably sealed to protect them against damage during transit and storage.
- e) 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 flange 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.
- f) Valve Tag Nos. shall be incorporated in all the dispatch documents.
- g) Proper care shall be taken to avoid damage to the painted surface during transit.
- h) Vendor to provide soft copy of photos/ snaps of duly packed valves. The soft copies to be provided by the vendor after final inspection of valves. Clearance for dispatch of valves will be given only after satisfactory packing condition of valves from vendor works.
- i) 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.

	<b>SPECIFIC TECHNICAL REQUIREMENTS AIR RELEASE VALVES 2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		SECTION C	
		REV. NO.: 00	DATE: 04.09.2014
		Sheet 3 of 3	

**7 SPARES**


- a) **Mandatory Spares:** NIL
- b) ~~**Recommended Spares:** List of recommended spares for 3 year reliable operation along with the unit price shall be indicated in the schedule of prices for recommended spares enclosed in Volume III. Cost of Recommended spares shall not be included in the base price.~~
- c) Order for the spares may be placed simultaneously or otherwise at the option of purchaser.

**8 DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER**

Bidder shall submit the following documents (enclosed in Vol III) duly filled, signed and stamped along with the bid:


- a) Compliance sheet
- b) Schedule of Deviations if any.
- c) Schedules of Price & Unit Price for each project.
- d) Schedule of declaration.

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.

	<b>TITLE:</b> <b>TECHNICAL SPECIFICATION</b> <b>AIR RELEASE VALVES</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 04.09.2014
		SHEET 1 OF 1	

## SECTION-D

### STANDARD TECHNICAL SPECIFICATION DATA SHEET – A QUALITY PLAN DATA SHEET – C

	<b>STANDARD TECHNICAL SPECIFICATION FOR Air release valves</b>	SPECIFICATION NO. PE-SS-999-100-M019	
		VOLUME II-B	
		SECTION D	
		REV. NO. 01	DATE: 29-05-2012
		SHEET 1	OF 2

## 1. GENERAL

This specification covers the design, materials, construction features, manufacture and testing of Air release valves at Vendor's or/ and sub-Vendor's works inclusive of painting and packing requirements.

## 2. CODES AND STANDARDS

- 2.1 The design, materials, construction features, manufacture, inspection and testing of valves shall conform to the latest applicable codes and standards.
- 2.2 The valves covered under this specification shall be designed and tested as per IS 14845.
- 2.3 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.

## 3. DESIGN REQUIREMENTS

- 3.1 Valves shall be flanged, double orifice, double float & kinetic type.
- 3.2 All valves shall be suitable for the 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.

## 4. Materials


- 4.1 The materials of construction of main parts of Air release valves shall be as specified in Data Sheet-A.
- 4.2 The materials of construction of the remaining parts shall be as per the relevant standard governing the valves and to suit water quality. These materials shall be subjected to approval.
- 4.3 Material used in manufacture of valve shall be of tested quality.

## 5. CONSTRUCTION FEATURES

- 5.1 The float shall not close the valve at higher air velocities. The orifice contact joint with the float shall be leak tight. The valves shall efficiently discharge the displaced air automatically from pipes/ducts while filling them & admit air automatically into them while they are being emptied. The valve shall also be able to release any trapped air while at normal working conditions from pipes /ducts.
- 5.2 The body of valve shall be of one piece construction.
- 5.3 All valves shall be fitted with a stainless steel nameplate (2 mm thick) with valve tag nos. & service description, engraved 1 mm deep and filled with black enamel paint. This nameplate is in addition to the rating plate being provided by vendor indicating the valve body material, rating, size etc.

## 6. MANUFACTURE OF VALVES

- 6.1 Valve castings shall be procured from foundries observing strict quality control and approved by reputed customers.
- 6.2 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.

	<b>STANDARD TECHNICAL SPECIFICATION FOR Air release valves</b>	SPECIFICATION NO. PE-SS-999-100-M019	
		VOLUME II-B	
		SECTION D	
		REV. NO. 01	DATE: 29-05-2012
		SHEET	2 OF 2

## 7 TESTING AND INSPECTION

- 7.1 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
- 7.2 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.

## 8 PAINTING

- 8.1 The surface preparation of all exterior and interior surfaces of valves shall include the following:
- Removal of oil, grease, dirt and swarf etc.
  - Removal of rust and scale etc.,
  - Sand blasting/ shot blasting.
- 8.2 All exterior surfaces of valves shall be painted with primer and finish coated with coating of min. 150 microns thickness. Color shade etc. shall be subject to BHEL/ Customer approval.

## 9 CLEANING AND PROTECTION FOR DESPATCH

- 9.1 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.
- 9.2 Floats of valves shall be properly secured while dispatching so that there is no risk of damage to them.
- 9.3 Valve ends shall be protected from external damage and sealed against the ingress of dirt. 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.
- 9.4 All the valves shall be packed suitably in wooden cases in order to avoid damage during transit and also during storage at site.
- 9.5 Valve Tag Nos. shall be incorporated in all the dispatch documents.



**DATA SHEET- A  
AIR RELEASE VALVES  
2x500MW NEYVELI NEW TPP**

SPECIFICATION NO. PE-TS-402-100-M019

VOL II B

SECTION D

REV. NO.: 00 DATE: 04.09.2014

SHEET 1 OF 2

1	2	3	4	5	6		7	8	9	11	12	13	14		15	16
					SL NO.	TAG NOS.							TYPE OF VALVE	SIZE mm (NB)		
PRESSURE KG/CM2(G)	TEMP (DEG ° C)	MM	MM													
1	CW-6, CW-8, CW-10 & CW-12 (EACH 2 NOS.)	Air Release Valve without Isolating Valve (Double Ball Kinetic Type design)	200	AUTO	5	60	CW SYSTEM	PN 1.0 OF IS:14845 FOR ARV	CI AS PER IS:210, FG 260	13% Cr. STEEL	ASME B 16.1 CLASS 125 F/F	-	219.1	6.35	8	8
<b>TOTAL</b>															<b>8</b>	<b>8</b>

**NOTES**

1. LEGENDS: ARV=AIR RELEASE VALVE
2. COMMISSIONING SPARES --> 1 SET OF COVER GASKET FOR EACH ARV
3. \*\*\* - FOR DETAILED MATERIAL OF CONSTRUCTION REFER ATTACHED DATA SHEET-A (PAGE 2 OF 2).


*Ashish.*  
04.09.2014  
**ASHISH KUMAR VERMA**  
SR. ENGR. /MPL

Signature of the bidder with name, designation, date and company's seal

	<b>DATA SHEET-A</b> <b>AIR RELEASE VALVES</b> <b>2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME-IIB	
		SECTION : D	
		REV. NO.: 00	DATE: 04.09.2014
		Sheet 2 of 2	

Sl. No.	PARTICULAR	MATL. FOR CAST IRON
1	BODY, HP& LP COVERS, COWL, JOINT SUPPORTING RING	IS 210 Gr. FG 260
2	LP SEAT RING	Natural rubber
3	H.P. ORIFICE, ORIFICE PLUG & FLOAT GUIDE	ASTM A182 Gr F6a (13% chromium)
4	H.P. & L.P. FLOATS	Wooden(ebonite coated)
5	GASKET	rubber
6	BOLTS & NUTS	ASTM A193 Gr B7 & ASTM A194 Gr 2H
7	NAME PLATE FOR PURCHASER'S VALVE TAG NOS.	AISI 316 (2 MM THICK)


*Ashish*  
 04.09.2014  
**ASHISH KUMAR VERMA**  
**SR. ENGR. /MPL**

		<b>QUALITY PLAN</b>			CUSTOMER :- NLC LTD.			PROJECT : 2x500MW NEYVELI NEW TPP (NTA2)			SPEC. NO :PE-SS-402-100-M019	
SHEET 1 OF 2		SYSTEM : LP PIPING VALVES (WATER SYSTEMS)			BIDDER/VENDOR			QP NUMBER: PE-QP-402-100-M009 REV. 00 DTD. 04/09/2014			SPEC. TITLE	
					ITEM: CAST IRON / CARBON STEEL/ STAINLESS STEEL/ AUSTENITIC D.J GRADE-D2 AIR RELEASE VALVE (PN 1.0 of IS 14845)			SECTION		VOLUME		
S.NO.	COMPONENT/ OPERATION	CHARACTERISTICS CHECKED	CATE-GORY	TYPE/METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
									P	W*	V	

1.0	MATERIALS											
1.1	BODY, HP & LP COVER, COWL, HP ORIFICE & PLUG	1. PHYSICAL & CHEMICAL PROPERTIES	MA	PHYSICAL& MECH TEST	1/HEAT/ HEAT TREATMENT	APPD.DRG/ TECH. SPEC.	APPD. DRG./ TECH. SPEC.	TEST CERT	3/2	2	1	PHYSICAL TEST ONLY FOR CI PARTS
		2. SURFACE DEFECTS	MA	VISUAL	100%	MSS-SP-55	NO HARMFUL DEFECTS	LOG BOOK	3/2	2	2	
		3. DIMENSIONS	MA	MEASUREMENT	100%	PROD. DRG./APPD. DRG	PROD. DRG./APPD. DRG	LOG BOOK	3/2	2	2	
1.2	WOODEN FLOATS, GASKET	1. DIMENSIONS	MA	MEASUREMENT	100%	-DO-	-DO-	-DO-	3/2	2	2	
		2. SURFACE DEFECTS	MA	VISUAL	100%	IS: 14845	FREE FROM DEFECTS	-DO-	3/2	2	2	
2.0	INPROCESS CONTROL											
2.1	MACHINING OF BODY, COVER, ORIFICE	1. DIMENSIONS	MA	MEASUREMENT	100%	PROD. DRG.	PROD. DRG.	-DO-	3/2	2	2	
		2. SURFACE DEFECTS	MA	VISUAL	100%	MSS-SP-55	FREE FROM DEFECTS	-DO-	3/2	2	2	
		3. SUB SURFACE DEFECTS	MA	PT	100%	ASME B 16.34 / ASTM E 165	ASME B 16.34 / ASTM E 165	TEST CERT	3/2	2	1	
2.2	FLOATS WITH EBONITE COATING, LP SEAT RING	1. SURFACE DEFECTS	MA	VISUAL	100%	IS: 14845	COMPLETE COVERING OF WOODEN FLOAT WITH EBONITE	-DO-	3/2	2	2	
		2. HARDNESS	MA	MEASUREMENT	100%	APPD DRG./ IS:14845 (cl. 10.6.1, cl.10.5.4& cl.10.5.5)	APPD DRG./ IS:14845 (cl. 10.6.1, cl.10.5.4& cl.10.5.5)	INSP. REPORT.	3/2	2	1	
		3. DIMENSIONS	MA	-DO-	100%	APPD DRG/ IS:14845(cl. 10.5.1)	APPD DRG./ IS:14845(cl. 10.5.1)	-DO-	3/2	2	1	

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

*Ashish*  
04.09.2014  
ASHISH KUMAR VERMA  
SR. ENGR./MPL

		<b>QUALITY PLAN</b>			CUSTOMER :- NLC LTD.	PROJECT : 2x500MW NEYVELI NEW TPP (NTA2)	SPEC. NO :PE-SS-402-100-M019					
SHEET 2 OF 2		SYSTEM : LP PIPING VALVES (WATER SYSTEMS)			BIDDER/VENDOR	QP NUMBER: PE-QP-402-100-M009 REV. 00 DTD. 04/09/2014	SPEC. TITLE					
						ITEM: CAST IRON / CARBON STEEL/ STAINLESS STEEL/ AUSTENITIC D.I GRADE-D2 AIR RELEASE VALVE (PN 1.0 of IS 14845)	SECTION VOLUME					
S.NO.	COMPONENT/ OPERATION	CHARACTERISTICS CHECKED	CATE- GORY	TYPE/METHOD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
									P	W*	V	


3.0	ASSEMBLY	DIMENSIONS	MA	MEASUREMENT	100%	APPD.DRG.	APPD. DRG.	-DO-	3/2	2,1	-	
4.0	TESTING											
4.1	BODY	LEAKAGE	CR	HYDRAULIC	100%	APPD DRG / IS:14845 (CL 12.4.4)	NO LEAKAGE	TEST CERT	3/2	2,1	-	
4.2	HP & LP ORIFICES SEAT TEST AND PERFORMANCE	LEAKAGE, FUNCTIONAL& PERFORMANCE TEST	CR	AIR/WATER	100%	IS:14845 (CL.12.4.1, 12.4.2 & 12.4.3)	NO LEAKAGE AND SMOOTH & SATISFACTORY OPERATION	-DO-	3/2	2,1	-	
5.0	END CONNECTION	DIMENSIONS	CR	MEASUREMENT	100%	APPD. DRG./ TECH.SPEC.	APPD. DRG./ TECH.SPEC.	INSPN. REPORT	3/2	2,1	-	
6.0	FINAL INSPECTION	1. CLEANLINESS 2. COMPLETENESS AND CORRECTNESS & NAMEPLATE WITH TAG NOS.	MA	VISUAL	100%	-DO-	-DO-	-DO-	3/2	2,1	-	
7.0	PAINTING	1. QUALITY AND THICK-NESS OF PAINT	MA	VISUAL AND MEASUREMENT WITH PAINT THICKNESS GAUGE	100%	TECH. SPEC.	TECH. SPEC.	-DO-	3/2	2	1	
8.0	PACKING	AS PER BHEL TECHNICAL SPEC.	MA	VISUAL	100%	-DO-	-DO-	SOFT COPY OF PHOTOGR APHS	3/2	2	1	PHOTOGRPHS OF VALVES AFTER PACKING TO BE VERIFIED BY BHEL BEFORE ISSUING MDCC.

**ABBREVIATIONS** \* WITNESS 'W' SHALL BE 100% BY VENDOR AND 10% BY BHEL/CUSTOMER AT RANDOM FOR EACH SIZE, TYPE & RATING (OR) MIN. 02 NOS., WHICHEVER IS HIGHER.

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

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

*Ashish*  
04.09.2014  
**ASHISH KUMAR VERMA**  
SR. ENGR./MPL

	<b>TECHNICAL SPECIFICATION</b> <b>AIR RELEASE VALVES</b> <b>1x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : IIB	
		SECTION: D	
		REV. NO.: 00	DATE: 04.09.2014
		SHEET 1 OF 1	

### **DATA SHEET - C**

Drawings/documents distribution schedule to be followed by the successful bidder:

1.0 The successful bidder shall submit the following drawings/documents within two weeks after award of contact.

1.1 Relevant drawings/leaflets for the valves showing following information.

- i) Complete cross sectional arrangement of the valve.
- ii) Binding dimensions, dismantling clearances & weights.
- iii) Bill of material incorporating all the materials of construction of various parts along with BS/ASTM/IS standards to which the materials conform to.
- iv) Special features, if any, as called for in the specific requirement
- v) Type of oil/Grease wherever required and its annual consumption.

1.2 Quality Plan duly signed & stamped with bidder's seal.

2.0 The following shall be submitted within the stipulated time period as per vendor's drawings/ documents schedule, but not later than one month before first dispatch.

- a) Drawings of components & details as deemed necessary.
- b) Instruction manual for erection, operation and maintenance.
- c) Storage instructions.

3.0 Before dispatch of the equipment the vendor shall furnish the following.

- a) Material Test certificates.
- b) Shop test reports and certificates.

4.0 Distribution of drawings / documents for all projects:

After award of the contract the successful bidder shall furnish drawings/ documents as per following distribution schedule.

Sl. No.	Type of Document	No of Hard copies	No. of Soft copies
1	Documents submitted for Approval	6 Nos.	5 Nos.
2	Final Distribution(Approved Documents)	13 Nos.	6 Nos.
3	O&M Manuals	16 Nos.	5 Nos.

**2x500MW NEYVELI NEW TPP**

**VOLUME - III**

**TECHNICAL SCHEDULES**


**FOR**

**AIR RELEASE VALVES**

**SPECIFICATION NO. PE-TS-402-100-M019**




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

	<b>AIR RELEASE VALVES</b> <b>2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO. PE-TS-402-100-M019	
		VOLUME : III	
		SECTION:	
		REV. NO.: 00	DATE: 04.09.2014
		SHEET 1 OF 1	

## CONTENTS

SL.NO	TITLE
1	COMPLIANCE SHEET
2	SCHEDULE OF DEVIATIONS
3	SCHEDULE OF DECLARATIONS
4	SCHEDULE OF PRICES

	<b>COMPLIANCE SHEET</b> <b>AIR RELEASE VALVES</b> <b>2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO.:PE-TS-402-100-M019	
		VOLUME : III	
		SECTION:	
		REV. NO. 00	DATE : 04.09.2014
		SHEET 1 OF 2	


**The bidder shall sign and return a copy of this compliance sheet along with his offer, indicating his compliance to the points specified herein:**

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

1.	Technical requirements as per Data sheet-A & Standard Technical Specification of Vol IIB Section-D	<b>Accepted</b>	<b>Not Accepted</b>
2.	Quality Plan	<b>Accepted</b>	<b>Not Accepted</b>
3.	Specific Technical requirements of Vol IIB Section-C	<b>Accepted</b>	<b>Not Accepted</b>
4.	Documentation requirement as per Data sheet-C of Vol IIB Section-D	<b>Accepted</b>	<b>Not Accepted</b>

- B) Deviations to the technical specification are not acceptable. However, if there are any deviations due to unavoidable reasons then the same to be clearly specified in the schedule of deviation. In case of no deviations, schedule of deviations to be filled as NIL by bidder.
- C) The offered materials should be either equivalent or superior to those specified. Also for components where material is not specified, the material used shall be suitable for intended duty.
- D) QP/ test procedures shall be submitted in the event of order based on the guidelines given in the specification & QP enclosed therein. QP will be subject to BHEL/Customer approval in the event of order & customer hold points for inspection/ testing shall be marked in the QP at the contract stage. All Inspection/ testing shall be as per approved QP. The charges for 3rd party inspection (Lloyds, TUV or equivalent) for foreign bidders shall be included in the base price of the equipment by the bidder. This 3rd party inspection agency shall be approved by BHEL and will be decided in contract stage.
- E) All drawings/data – sheets etc. to be submitted during contract shall be subject to BHEL/Customer review/ approval.
- F) GA drawings, as submitted with offer at tender stage are for reference purpose only and shall be subject to approval during contract stage.
- G) The commissioning spares (if any) are supplied on 'As Required Basis' & prices for same shall be quoted in the price bid format. If the bidder has not quoted for commissioning spares at tender stage and if the same are actually required during commissioning, then the same shall be supplied by bidder without any cost to BHEL.

PARTICULARS OF BIDDER / AUTHORISED REPRESENTATIVE				
NAME	DESIGNATION	SIGNATURE	DATE	COMPANY SEAL

	<b>COMPLIANCE SHEET</b> <b>AIR RELEASE VALVES</b> <b>2x500MW NEYVELI NEW TPP</b>	SPECIFICATION NO.:PE-TS-402-100-M019	
		VOLUME : III	
		SECTION:	
		REV. NO. 00	DATE : 04.09.2014
		SHEET 2 OF 2	

- H) All drawings/documents in soft as well as hard copy shall be submitted within 2 weeks from placement of Purchase orders in the event of order. A technical representative of bidder shall come for meeting with BHEL along with revised documents within one week of receipt of BHEL comments to resolve all issues and incorporate all comments in the soft copy for further submission to customer if required. Further, on receipt of customer comments on the documents a technical representative from bidder shall come for meeting to resolve all issues and incorporate all comments in the soft copy at BHEL and resubmit the drawings /documents for CAT I approval and shall visit customer/customer's consultant if required for across the table approval of documents.
- I) Any special tools & tackles, if required, shall be in bidder's scope.
- J) Prices for recommended spares (if any) for three year operation shall be furnished separately and not to be included in the base price.
- K) The offered model design should be of bidder's proven model and they should have designed, manufactured, supplied and tested the equipment of similar type and rating in at least Two (2) projects and be in satisfactory operation for last two (2) years.

PARTICULARS OF BIDDER / AUTHORISED REPRESENTATIVE				
NAME	DESIGNATION	SIGNATURE	DATE	COMPANY SEAL



**TITLE**

**\* SCHEDULE OF DEVIATIONS**

( ) From Technical Specifications (Volume -II B)


SPECIFICATION NO  
PE-TS-402-100-M019

VOL III

SHEET..... OF.....

We the undersigned hereby certify that the above mentioned are the only deviations.

PARTICULARS OF BIDDER / AUTHORISED REPRESENTATIVE				COMPANY SEAL
NAME	DESIGNATION	SIGNATURE	DATE	

	<b>TITLE</b>  <b>*SCHEDULE OF DECLARATIONS</b>	SPECIFICATION NO PE-TS-402-100-M019
		VOL III
		SHEET..... OF.....

\* Bidder shall include this schedule both in technical and Price offers

## DECLARATION

I .....certify that all the technical data and information pertaining to this specification are correct and are true representation of the equipment/system covered by our format proposal number Dated ..... and there is no deviation to the specification other than those listed in "Schedule of deviations" of this Vol III.

I hereby certify that I am duly authorized representative of the Bidder's company whose name appears above my signature.

Bidder's Company Name

.....

Authorised representative's  
Signature

.....

Name

.....

Bidder's Name

The bidder hereby agrees to fully comply with the requirements and intent of this specification for the price indicated

PARTICULARS OF BIDDER / AUTHORISED REPRESENTATIVE				
NAME	DESIGNATION	SIGNATURE	DATE	
				COMPANY SEAL