

Buyer Specific Special Terms and conditions**Item Name: NRV with Aluminium Flap,****Projects: NTPC LARA RAIGARH Projects****Scope of Enquiry**

E-bids on GeM portal are invited from bidders for the supply of NRV with AI Flap 1 SET (2-NOS) for **LARA, RAIGARH** Project as per requirement mentioned below:

Sl. No.	Material Code & Item Description	Total Quantity (set)	Lot	Date for Supply Completion
<u>1</u>	W90313137684, NRV with Aluminium Flap, NB 200	2-SET (1 SET = 2 Nos)	Lot-1	31.01.2026
	<u>2X800 MW,</u> NTPC LARA STPP STG-II		Lot-2	31.05.2026


Project Name & Address	1	BHEL Site office 2X800 MW NTPC LARA stage II project. Pusaur, Dist Raigarh, Chhattisgarh 496440
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No.	Terms	Description	Your confirmation
1.	Confirmation to compliance of General terms and conditions on GeM 4.0 (Version 1.18)	General terms and conditions on GeM 4.0 (Version 1.18) or subsequent rules/policies issued by GeM shall be applicable. Please confirm.	
2.	Evaluation criteria	Evaluation will be done on the basis of total landed cost to BHEL, with cost involved for delivery up to BHEL <u>LARA RAIGARH</u> Project site (considering material cost, taxes & duties, Freight etc.).	
3.	Price basis & Evaluation Currency	Prices should be quoted on F.O.R. Destination up to <u>LARA RAIGARH</u> Project basis i.e. including freight, packing & forwarding charges, GST etc. Please mention here the applicable GST rate included in the price quoted by you. The evaluation currency for this tender shall be INR.	
		Transit insurance would be arranged by BHEL. Please send your offer keeping this in view.	
4.	Pre-Qualification Requirements (PQR)	The Pre-Qualification Requirements have been compiled and placed at ANNEXURE-2. All the bidders should ensure submission of complete details and documents as called for in these requirements. The Offers submitted by the bidders would be scrutinized with respect to Pre-Qualification Requirements first. Techno-Commercial offer of only those bidders shall be evaluated who meet the Pre-Qualification Requirements.	
5.	Technical Requirements	1. Material specification as per Spec ST 47034 with its revision 01 & ST47025 rev 02 & its ADDENDUM only. 2. Required quantity is defined as set (ST) and one ST is equal to 2 Nos. of NRV with Aluminium Flap. 3. Kindly confirm that quoted offer by you have been complied all technical requirements as given in tender documents and submit all documents to	

		BHEL as per tender specifications and drawings without any deviations.	
6.	Quality Requirements & Inspection	<ol style="list-style-type: none"> 1. Please confirm acceptance for QAP No. QA/BI/QP/117 Rev 00 and submit endorsed copy of this QAP along with offer. 2. Please confirm that inspection shall be by BHEL Nominated inspection agency as per BHEL approved quality plan. 3. Please note that BHEL will pay directly to BHEL's nominated TPI. 4. Inspection call shall be raised by the vendor at least 07 days in advance of readiness of material. If inspection is not attended by the inspection agency within 07 days of inspection call, delivery shall be re-scheduled accordingly. 	
7.	Engineering Document/ Document approval	Drawings/Data sheets/Documents/ Quality Plan etc., as called for in the specifications shall be submitted for approval to BHEL for BHEL/customer approval within 30 days of purchase order. Any delay in delivery on account of late submission of drawings shall be to vendors account. BHEL will arrange the approval of the drawings/data sheets/ documents within 30 days of their receipt provided those are complete in all respect. Delays in approval shall be dealt on merit basis.	
8.	Payment terms	Payments shall be made to the Seller within 90 days of issue of consignee receipt-cum-acceptance certificate (CRAC) and on-line submission of bills. For Micro/ small & Medium (covered under MSME Act), payment will be made within 45 days & 60 days respectively after on-line submission of bills and issue of consignee receipt-cum-acceptance certificate (CRAC).	
9.	Manufacturing & Delivery Period	Kindly quote your minimum delivery period in no. of weeks/months from the date of issue manufacturing clearance. -----	
10.	Manufacturing clearance from BHEL	Lot wise/unit wise manufacturing shall be start only after lot wise/unit wise manufacturing clearance from BHEL. Please confirm.	
11.	Liquidated Damages	Liquidated Damages (LD) for Late Deliveries shall be applicable @ 0.5% per week or part thereof on the value of respective delayed supplies subject to a maximum of 10% of the value of respective delayed supplies. Value of delayed supplies will mean the gross value to the vendor (Before LD) against such supplies excluding taxes and duties.	
		The date of GR/ LR would be treated as the date of delivery for penalty purposes	
		In case of any deviation to the above penalty clause, BHEL reserves the right to load the offers to the extent to which it is not agreed by vendors (at offered value).	
12.	MDCC clause	Please note that, material shall be dispatched only after issue of Material dispatch clearance certificate (MDCC) end customer. For issue of MDCC, vendors are required to submit all test certificates (TC) and inspection report of third party (IR) to BHEL. After review & acceptance of the quality document, BHEL will forward the same to end customer for issuance of MDCC. Material shall be dispatched within 7 days from the the date of issuance of MDCC.	
13.	Other Information	8 Digit HSN code may please be mentioned in Your offer.	

14.	Guarantee	Guarantee/ Warranty Period: 24 months from the date of commissioning or 36 months from dispatch, whichever is earlier. Guarantee certificate is to be provided along with shipping / dispatch documents. Please confirm.	
15.	Packing & QR code Instructions for LARA Project	<p>QR code Instructions shall be complied as per below instructions -</p> <p>1.Before shipment of material, vendor has to obtain QR code from BHEL and these QR codes (properly laminated) shall be affixed on packages/boxes/crates/bundles of material to be supplied. While packing the material following is to be ensured-</p> <p>2.Material of unit-1, unit-2 and mandatory spares need to be packed in separate boxes. Loose items (if any) needs to be packed in boxes/crates or bundled together. For loose items one marker board needs to be send for each bundle for fixing this RFID Tag at site. QR code will be issued box wise/bundle wise. Vendor to ensure correct QR Code are affixed on the boxes/bundles.</p> <p>3.Please confirm that each item in the box of spares items must be tagged with the same description as per packing list. Detail of each spare should be mentioned in the packing list. Please confirm.</p>	
16.	Packing Instructions	<p>1. Vendor to ensure proper and sturdy packing suitable for handling during transportation up to site in healthy condition.</p> <p>2. Vendor to submit packing list (box-wise) for BHEL review before dispatch.</p>	
17.	Arbitration:	<p>SETTLEMENT OF DISPUTES/ARBITRATION: In all cases of dispute the mater shall be referred for ARBITRATION by sole arbitrator to be appointed by the Unit Head of Bharat Heavy Electricals Ltd., at HARIDWAR. The award of the Arbitrator shall be final and binding on both the parties. The place of Arbitration shall be Haridwar.</p> <p>JURIDICTION: The courts of Haridwar, India, shall have exclusive jurisdiction.</p>	
18.	Breach of contract, Remedies and Termination	Please note that in case of breach of contract, 10% of the contract value shall be recovered from financial remedies (i.e. available bills of the contractor, retention amount, etc. with BHEL) or legal remedies be pursued. The balance scope shall be got done independently without Risk & Cost of the failed supplier/ contractor. Further, levy of liquidated damages, debarment, termination, de-scoping, short-closure, etc., shall be applied as per provisions of the contract. Please confirm.	
19.	Additional Conditions for Assessment	<p>1. BHEL reserves the right to consider / Not-consider the offers based on the evaluation of documents submitted for the Pre-Qualification Criteria (PQR).</p> <p>2. BHEL also reserves the right to have on-site assessment of the facilities at supplier's works during the bid evaluation.</p>	
20.	Offer Validity	Please confirm offer validity for 120 days from the date of Part-1 opening.	
20	Firm prices	Price will remain firm and fixed during entire execution of tender/supply.	
21.	BID to RA	As per GeM NIT.	
22.	Bidder Contact details	<p>Contact details of your representative: Mobile no. & Email id (minimum 2 person)</p> <p>1.</p> <p>2.</p>	

Note: Please fill your confirmation in all relative boxes or mention deviation accordingly. Blank field may be understood as confirmed by bidder.

	BHARAT HEAVY ELECTRICALS LIMITED, HARIDWAR STE-TL ENGINEERING DEPARTMENT	
	PRE-QUALIFICATION REQUIREMENT NRV WITH ALUMINIUM FLAP	DOCUMENT NO. TL/NRV/PQR/20200002 Rev:00 Dt:13.11.2021

Description:

These valves are single plate (Material-aluminium) type valve and are installed in horizontal run of pipe after each vapour exhauster to prevent the backward flow of air+steam mixture in case of vapour exhauster is under maintenance.

Mandatory requirement for Pre-Qualification:

- The vendor should have successfully designed, manufactured, tested & supplied of NRV with aluminum flap valves. Vendor should have supplied one (1) no. in at least one power or process plants in last seven (7) years from the date of issuance of enquiry with following technical details mentioned in table-1.

Table-1

Valve Type	Single Plate Check/NRV Valve
Valve Size Range	NB200 & above
Body Type	Wafer
Valve Rating	CL150 & above as per ASME B16.34 or equivalent
Valve Body Material	Cast Steel-A216Gr.B or higher grade
Flow Medium	Air+Steam Mixture

- The vendor should furnish the following documents in line with criteria given in above sl.no.1.
 - Executed unpriced Purchase order (P.O.) should not be older than seven (7) years from the date of issuance of enquiry.
 - Dispatch document w.r.t above executed P. O. i.e. Approved valve GA drawing & data sheet, Delivery challan, Tax invoice, Inspection report & Lorry way bill for our review.
 - Those who have supplied above mentioned valve to BHEL-HARIDWAR to furnish only P.O. ref. for our review.

Note: -

- BHEL reserves the right to verify the information submitted by vendor. Submission of false/incorrect information shall lead to rejection of offer.
- BHEL reserves the right to ask for more pertinent information /documents / clarifications. Vendor shall provide this information to BHEL in a timely manner so that project schedule doesn't hamper.
- All the documents furnished to BHEL shall be in Hindi/English language only. If the documents are not in Hindi/English, then they must be accompanied with duly certified Hindi/English translations of the same.

Prepared By	Checked By	Approved By
SUNIL KR. SHARMA Dy. Engineer/TL <i>[Signature]</i> 13.11.21	ANIL KUMAR Sr. Engineer/TL <i>[Signature]</i> 18/11/21	S.K SONKAR Sr. Manager/TL <i>[Signature]</i> 18/11/2021



Own Experience

1.0 SCOPE

This specification covers design, manufacturing assembly, testing and supply of Non-return valves as per sketch 1.0 to be installed in turbine lube oil and FRF vapour exhaust line with identification number as tabulated below:

SL. NO.	Identification Number.	Size No	Flow medium	Working Parameters	End connection
1	MAV82AA001	125	Sorvo	Pressure	To be
2	MAV82AA002	125	-prime	2 kg/cm ²	fitted
3	MAV82AA002	80	46 of	abs.	between
			10C	Temp.	flanges
			Fire	70°C	as per
			resis-		DIN 2633
			tant		
4	MAV82AA003	80	Fluid		
			(Phosp-		
			oric		
			ester)		

2.0 FUNCTION

These valves are to be installed on main oil tank and FRF tank after each vapour exhausters to prevent back flow of vapours in case one vapour exhauster is under maintenance.

INVENTORY NO. P-5515	REVISION : 02			Distribution	Qty.	Approved : <i>[Signature]</i> ENGG. DEV. MANAGER	ST 8-20
	Name	Sign	Date				
	S.K. Gupta	<i>[Signature]</i>	12.2.08				
	Reaffirmed Feb. 2008						
SIGN & DATE 08/15/84	AGREED.			DRAWN	WORKED	A. K. JAIN	SIGN. & DATE A.K. Jain 2.3.84
	TSX	B.M. BANSAL	<i>[Signature]</i> 24.3.84				
	QAX	H. CUPADHYA	<i>[Signature]</i> 9.3.84				
	DEPTI	NAME	SIGN. & DATE				
				SUPERVISED	S.S. KULKARNI	<i>[Signature]</i> 19.3.84	



PRODUCT STANDARD

STEAM TURBINE ENGINEERING

SUPERSEDES
INVENTORY No.

SIGN & DATE

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INVENTORY No.

SIGN & DATE

SIGN & DATE

3.0 RATING : Nominal pressure rating = 16 kg/cm²

4.0 MATERIAL Flap of Aluminium
Body of Carbon steel, Material of ^{other} internals to be selected by supplier and to be informed to purchaser for their comments, if any. Also refer clause 4.0 of ST 47025.
All gaskets shall be of VITON.

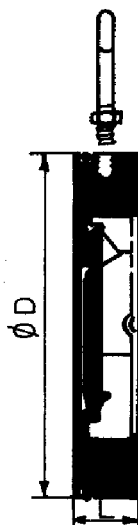
2.0 END CONNECTIONS

Valves are to be fitted between flanges as per
DIN 2633.

6.0 SPECIAL FEATURE:

Maximum permissible pressure drop across the valve at sl.Nos. 1 & 2 with $0.11 \text{ m}^3/\text{sec}$ flow of air shall be 60 mmwc and across the valve at Sl.Nos. 3 & 4 with $0.02 \text{ m}^3/\text{sec}$ flow of air shall be 20 mmwc.



7.0 For completion of this specification, read this specification alongwith general purchase specification of valves ST 47025.



SKETCH-1

NOM. DIA.	DIM.IN MM		WT APPX IN K.G.
MM.		D	K.G.
80	24	134	1.80
100	27	154	2.50

Revision: 02

INVENTORY No. P-5515	SIGN & DATE 2/11/15	SIGNATURE <i>Amr</i>	COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED. It must not be used directly or indirectly in any way detrimental to the interest of the company.	SUPERSEDES INVENTORY No.	SIGN & DATE		PRODUCT STANDARD	ST 47034
							STEAM TURBINE ENGINEERING	PAGE 3 OF 3
<p>8.0 In continuation to clause 15.0 of Specification ST 47025, the min. test requirement envisaged by BHEL are as follows:-</p> <p>8.1 <u>Testing of Materials:</u> The material of components of valve such as body & disc shall be tested as per relevant specification for its chemical composition and mechanical properties. For remaining components compliance certificate shall be furnished.</p> <p>8.2 DPT on seat.</p> <p>8.3 Functional test. <i>smooth movement of the flap.</i> </p>								
REVISION: 02								

APPLICATION : STEAM TURBINE
ITEM : NRV WITH ALUMINIUM FLAP
DOC. NO. : 41313795992
MATERIAL CODE : W90313137684

REVISION-01

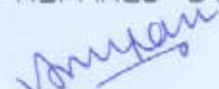
SCOPE:

NRV WITH ALUMINIUM FLAP DN200, PN16 TAG NO. MAW80AA031 & MAW80AA036.

FLOW THROUGH THE VALVE - $0.7\text{m}^3/\text{sec.}$
MEDIUM - HOT AIR/WATER VAPOUR
PRESSURE - $1.1\text{kg}/\text{cm}^2$
TEMPERATURE - 100°C
PD ALLOWED - 100 mmwc
GENERAL REQUIREMENTS - ST47025/ST47034

NOTE: ABOVE SCOPE REPLACES THE SCOPE GIVEN IN TABLE AT
CLAUSE NO. 1 OF ST47034.


PREPARED BY



(ANUPAM)

PED, BHEL, HARDWAR

APPROVED BY



(S.K.GUPTA)

PED, BHEL, HARDWAR



उत्पाद मानक

STEAM TURBINE ENGINEERING
PRODUCT STANDARD

ST47025
HW0690097

पृष्ठ 4 का 1

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SUPERSEDES
INVENTORY NO.

सामग्री सूची संका को
अधिकृत किया है

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स्वाधिकार एवं गोपनीय

इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है। इसका प्रयोग एवं आरक्षण इस से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए।

हस्ताक्षर एवं दिनांक
SIGN & DATE

सामग्री सूची संका INVENTORY
NO.


26.7.04




P-5522


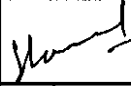
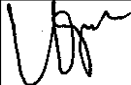
GENERAL PURCHASE SPECIFICATION OF VALVES

- 1.0 SCOPE :-** This specification covers the general technical requirements for all valves to be used in turbine integral system handling hot condensate, superheated steam, air steam mixture, steam water mixture, oil & oil vapours, fire resistant fluid & its vapours. Separate specifications to indicate specific requirements e.g. design parameters, nominal size etc. have been prepared for each valve which shall be enclosed with this specification whenever any requirement arises.
- 2.0 RATING :-** Rating of the valves shall be selected by valve supplier for the working conditions as specified in separate specification / documents / drawings / enquiry of desired valve to which specification is enclosed. The rating shall be as per ANSI B16.34 or approved equivalent.
- 3.0 END CONNECTION**
- 3.1** Butt weld end connections of valves shall be suiting to pipe size as mentioned in enclosed specification of valve.
- 3.2** In case of flanged end valves, the supplier shall separately quote for the counter flanges, gaskets, O-ring & fastners of required pressure-temperature rating.
- 4.0 MATERIAL :-** All materials used in the construction of the valve body and other component shall be selected from the best available material for the purpose. The purchaser / owner reserves the right to review the material specification of valve components and to ask changes in selection of material. Any specific material for particular valve has been mentioned in the valve specification.
- 5.0 DRAINAGE OF VALVE BODY :-** Depending on the construction and placement of the valve in piping system, a drain tapping in the body may be required for valves used in oil, steam and water lines. This shall be checked and intimated by purchaser / owner after the receipt of offer or at the time of placement of order. The tapping shall be at the lowest point and on the center line, which shall be suitably plugged with a threaded plug & washer. The drain size for various valve sizes shall be as follows:-
- NB50 to 100 - 15 mm
NB125 to 300 - 20 mm
NB350 & above - 25 mm
- 6.0**
- Each valve shall be marked with an arrow on body showing direction of flow of medium, not applicable for gate valve which can be mounted with either of the sides.
 - Handwheel shall have the indication for opening & closing direction.

				नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE
			अनुवादक TRANSLATED BY		
TSX	D.L. OBEROI		निर्माणकर्ता WORKED BY	S.K. GUPTA	26.7.04
QAX	S.S. CHAUHAN		जांचकर्ता CHECKED BY	V.K. GUPTA	26.7.04
सहमत विभाग AGREED DEPTT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षणकर्ता SUPERVISED BY	V.K. GUPTA	26.7.04
			स्वीकृति APPROVED :		
			निर्माण PREPARED : STE	जारी ISSUED : STE (TL) HARDWAR	दिनांक DATE : 26.3.84

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक STEAM TURBINE ENGINEERING PRODUCT STANDARD		ST47025 HW0690097	
				पृष्ठ 4 का 2 Page 2 of 4	
सामग्री सूची संख्या को अधिकृतित करता है	SUPERSEDES INVENTORY NO.	<p>3. GLAND SEALING :- Valves working under vacuum are to be provided with gland sealing arrangement.</p> <p>7.0 HYDRAULIC TEST :- Hydraulic test shall be carried out on each valve. After the hydraulic test the internals shall be wiped, cleaned and dried. The body & seat shall be tested hydraulically in accordance with ANSI B16.34. For steam & air service valves, seat leakage shall additionally be tested by air as per ANSI B16.34. Purchaser/owner shall have the right to witness the test. However the test certificates mentioning about test pressure & duration of test along with following informations shall be furnished to purchaser.</p> <ol style="list-style-type: none"> Valve identification No. Type of valve & description Valve size Name of manufacturer Project name Date of testing <p>8.0 CLEANING & SURFACE PROTECTION :- The surfaces shall be rubbed with a solvent (e.g white spirit) to clean & prepare them for the application of the paints. Unmachined surface shall be blast cleaned to remove any rust. Stainless steel portion shall not be painted.</p> <ol style="list-style-type: none"> Outer surface to be protected by painting with two coats of Red oxide Zinc chromate primer. Inside surface to be protected against rusting and corrosion. <p>9.0 IDENTIFICATION PLATE :- Following information in English shall be engraved on a metal sheet properly fixed at a convenient location on the body or body cover.</p> <ol style="list-style-type: none"> Identification No. as specified in enclosed valve specification. Valve type & Description Valve size Pressure rating Manufacturer Year of manufacturing Project name 			
COPYRIGHT AND CONFIDENTIAL The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company		स्वत्ताधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए।			
दिनांक एवं हस्ताक्षर SIGN & DATE	दिनांक 26.7.04	REV. NO. 02			
सामग्री सूची संख्या INVENTORY NO.	P-5522	निर्माणकर्ता WORKED BY		S.K.GUPTA	9/7/04
		जांचकर्ता CHECKED BY		V.K.GUPTA	9/7/04

दिनांक एवं हस्ताक्षर SIGN & DATE			<p style="text-align: center;">उत्पाद मानक</p> <p style="text-align: center;">STEAM TURBINE ENGINEERING</p> <p style="text-align: center;">PRODUCT STANDARD</p>		<p>ST47025 HW0690097</p> <p>पृष्ठ 4 का 3 Page 3 of 4</p>		
सामग्री सूची संख्या को अधिकृतित करता है	SUPERSEDES INVENTORY NO.	<p>10.0 STANDARD :- Latest issue and amendments of all applicable international standard shall apply.</p> <p>11.0 PACKING :- Valve ends, machined and unmachined surface, etc. shall be protected against rusting & corrosion and valve shall be packed according to mode of transport and storage in top shade store gantry in tropical climatic conditions for a period of 8-12 months.</p> <p>12.0 GUARANTEE :- The supplier shall guarantee trouble free operation of the equipment for a period of 2 years after installation and commissioning or a period of 3 years from the date of dispatch of equipment whichever is earlier.</p> <p style="padding-left: 40px;">If during erection/commissioning and operation at site, any defect in any component is detected, purchaser's / owner's site representative shall prepare the assessment report and a copy of the same shall be forwarded to the supplier. The supplier shall replace / rectify the concerned items free of charge. The supplier, if he so desires, may depute his representative to site at his own cost otherwise the report of purchaser's / owner's site representative shall be binding on the supplier.</p> <p>13.0 SPARES :- The offer of valves shall include the requirement of spares to be made available at the time of erection & commissioning. A separate offer of spares to be required for 3 to 5 years of operation shall also be separately enclosed along with main offer.</p> <p>14.0 SPECIAL TOOLS & TACKLES :- Any special tools & tackles, required for erection, commissioning and maintenance of valves shall be included in main offer per set of valves.</p> <p>15.0 QUALITY ASSURANCE, INSPECTION AND TESTING :-</p> <p>15.1 The manufacturer shall conduct all tests required to ensure all the component parts of the valve offered conform to the requirements of the specification and in compliance with requirements of applicable codes and standards.</p> <p>15.2 The bidder shall submit along with his offer quality plan in the prescribed BHEL's format.</p> <p>15.3 The particulars of the proposed shop tests and procedures for the tests shall be submitted to the BHEL / owner for approval along with quality plan.</p> <p>15.4 The equipment shall be dispatched only after inspection and clearance of material by BHEL / owner and approval of test certificates by BHEL / owner.</p> <p>15.5 The minimum tests/ checks to be carried out on the valve as envisaged by purchaser shall be as per the specification of desired valve to which this specification is enclosed. This is , however not intended to form a comprehensive testing programme as it is supplier's responsibility to prepare the detailed quality plan, which should also include tests, checks carried out by supplier as a part of their normal practice. This quality plan is subject to the approval of BHEL and owner. BHEL/owner reserves the right to ask for any more checks at the time of quality plan finalisation.</p>					
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स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है इसका प्रयुक्त एवं आगेका रूप से किसी भी तरह प्रयोग, जो कि कंपनी के हित में अनुकारक हो न किया जाए।							
हस्ताक्षर एवं दिनांक SIGN & DATE	26.7.04						
सामग्री सूची संख्या INVENTORY NO.	P-5522	REV. NO. 02		निर्माणकर्ता WORKED BY	S.K.GUPTA		9/7/04
				जांचकर्ता CHECKED BY	V.K.GUPTA		9/7/04

SIGN दिनांक एवं हस्ताक्षर	SIGN & DATE		उत्पाद मानक STEAM TURBINE ENGINEERING PRODUCT STANDARD		ST47025 HW0690097	
					पृष्ठ 4 का 4 Page 4 of 4	
सामग्री सूची संख्या INVENTORY NO.	सामग्री सूची संख्या को अधिकारित करता	SUPERSEDES INVENTORY NO.	<p>16.0 ACTUATORS :- As mentioned in valve specification, separately enclosed with this specification, the actuators shall be supplied along with handwheel to facilitate manual operation of valve. Direction of rotation of handwheel for opening and closing of valve shall be indicated on handwheel.</p> <p>17.0 DOCUMENTS</p> <p>17.1 Documents required along with the offer / at the time of registration :- The supplier shall submit 6 copies of following documents in English language along with the offer to enable purchaser for complete technical scrutiny of the offer.</p> <ol style="list-style-type: none"> 1. Cross sectional & dimensional drawing of valve along with actuator (if required) in assembled condition giving items nos. description, material specification of all components, details of bypass valve (if envisaged), gland sealing arrangement, end connection details, clear space required for operation & dismantling of valve & actuator for maintenance for approval by the purchaser. 2. Quality plan for approval by purchaser. 3. List of commissioning spares, maintenance spares for 3 to 5 years of operation for reference. 4. Any special requirements of lubricant for reference. <p>The document submitted along with the offer at the time of registration and approved by purchaser / owner shall be the basis of the order and no changes shall be made with out permission of purchaser / owner.</p> <p>Scrutiny and approval of documents, submitted along with the offer, by purchaser / owner shall not release the supplier and his sub-vendors of their responsibility under the contract .</p> <p>17.2 Documents to be submitted after placement of the order :-</p> <ol style="list-style-type: none"> 1. 10 copies of finalised contract drawing within 8 weeks. 2. 10 copies operation/ maintenance/ erection instructions for each station within 12 weeks. 3. Instruction of conservation and deconservation within 12 weeks. <p>18.0 Six copies of all actual test certificates and quality documents shall be furnished to purchaser/owner.</p> <p>19.0 If there are any deviation from this specification in offer, the same shall be clearly spelled out clausewise by supplier.</p> <p>20.0 Cross referred standards :- ANSI B16.34</p>			
स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है इसका प्रत्यक्ष एवं अप्रत्यक्ष रूप से किसी भी तरह प्रयोग, जो कि कम्पनी के हित में हानिकारक हो न किया जाए ।		हस्ताक्षर एवं दिनांक SIGN & DATE 26.7.04				
सामग्री सूची संख्या INVENTORY NO. P-5522	REV. NO. 02	निर्माणकर्ता WORKED BY	S.K.GUPTA		9/7/04	
		जांचकर्ता CHECKED BY	V.K.GUPTA		9/7/04	

ADDENDUM TO ST47025**APPLICATION : STEAM TURBINE****Date : 16.11.2011****ITEM : GENERAL SPECIFICATION OF VALVES****Rev : 01****ADDITIONAL SPECIFICATION :**

- a) Pressure retaining parts of valves shall be subjected to NDT as per Table-I.
- b) Bar stock / forging above 50mm diameter for valve trim shall be subjected to UT.
- c) Hardened / stellitted valve disc and seat are to be subjected to LPI and hardness check.
- d) Colour matching of valve disc / plug and seat shall be carried out to ensure contact.
- e) Hydraulic pressure test and seat leak test shall be carried out as per ANSI 16.34.
- f) Air seat leak test shall be carried out as per applicable standards / codes.
- g) Functional testing shall be carried out on each valve to check the following as per the approved valve data sheet :
 - (i) Smooth operation
 - (ii) Valve travel, closing and opening time
 - (iii) Current drawn by actuators
- h) Springs for safety valves shall be tested with suitable NDT and for spring rate.
- i) Safety and safety relief valves shall be tested for performance.

TABLE-I

Valve Size NB in mm	ANSI Class UPTO 300	ANSI Class ABOVE 300 UPTO 600	ANSI Class ABOVE 600 BELOW 900	ANSI Class 900 & ABOVE & BELOW 4500
Less than 50	Visual	Visual	Visual	MPI
50 & above but below 100	Visual	Visual	MPI	MPI & RT (on 10% of valves on 100% area)
100 & above but less than 300	Visual	MPI	MPI & RT (on 10% of valves on change of section & weld ends)	MPI & RT (on 100% area)
300 & above	MPI	MPI	MPI & RT (on change of section & weld ends)	MPI & RT (on 100% area)

NOTE : 1. For body and bonnet forgings UT with MPI may be adopted in place of RT.

2. For austenitic steel MPI may be replaced by LPI.

3. Outer surface of valve shall be painted as per following painting scheme

Painting Scheme

Paint (Coat)	Paint Type	No. of coat	DFT*
Primer Paint	: Epoxy base Zinc rich primer paint	1 Coat	35
Intermediate Paint	: Epoxy TiO ₂ Pigmented Polyamide Cured Paint	1 Coat	70
Finish (Final) Paint	: Aliphatic Acrylic 2 Pack Polyurethane Finish paint	2 Coats	75
Total DFT		180	

DFT – Dry Film Thickness (final) in microns.

- Shade as per RAL – Grey 9002
- Identification Tag/Band of white 9010 color. Legend in Black letters.

This supersedes clause 8 (i) of ST47025.

4. Valve made of stainless steel shall not be painted.

5. Valve body material for the following temperature parameter shall be as follows :-

Upto 400°C - Carbon steel

401°C - 495°C - Alloy steel (15Mo3 or equivalent)

496°C - 550°C - Alloy steel (10CrMo910 or equivalent)

Above 550°C - Alloy steel (X10CrMoVNb9-1 or equivalent)

6. Each type of Angle Drain valve (MAL valves) and Temperature control valve offered should have a minimum of two years of operational experience in similar application at the time of offer submission.


(S.K.Gupta)

QAX, BHEL, HARDWAR

PED, BHEL, HARDWAR

QUALITY PLAN										Page 1 of 2		
BHEL	QP NO.	QA_BI_QP_117		REV.	00	DESCRIPTION			LEGENDS			
	SPEC. NO.	AS PER PO		REV.	AS PER PO				P- PERFORMED BY		1- BHEL REP	
	DRG. NO.	APPROVED DRAWING AS PER PO		REV.	AS PER PO	W- WITNESSED BY		2- VENDOR				
							V- VERIFIED BY		3- SUBVENDOR			
SL. NO	COMPONENT OPERATION	CHARACTERISTICS	CLASSIFI- CATION	TYPE OF CHECK	QUANTUM	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
									P	W	V	

1	MATERIAL											
1.1	BODY, DISC	CHEMICAL COMPOSITION MECHANICAL PROPERTIES	MAJOR	CHEMICAL MECHANICAL	1 / HEAT	ORDERING SPEC. / BHEL APPD. DRG.	ORDERING SPEC. / BHEL APPD. DRG.	MILL TC	3/2	-	2/ 1	
		SURFACE DEFECTS	MAJOR	VISUAL	100%	MSS-SP-55	MSS-SP-55	TC	2	-	1	
		DIMENSIONS	MAJOR	MEASUREMENT	100%	BHEL APPD. DRG.	BHEL APPD. DRG.	TC	2	-	1	
2. IN PROCESS INSPECTION												
2.1	MACHINING OF BODY, DISC	DIMENSIONS	MAJOR	MEASUREMENT	100%	BHEL APPD. DRG.	BHEL APPD. DRG.	IR	2	-	-	
		SURFACE DEFECTS	MAJOR	DPT	100%	ASTM E165 ASME B16.34	ASME B16.34	TC	2	-	1	
2.2	HARD FACING ON DISC & SEAT	HARDNESS	MAJOR	HARDNESS	10%	BHEL APPD. DRG.			2	-	1	IF CALLED IN DRAWING
3	FINAL INSPECTION											
3.1	ASSEMBLY OF VALVE	DIMENSIONS	MAJOR	MEASUREMENT	100%	BHEL APPD. DRG.	BHEL APPD. DRG.	TC	2	1		
3.2	FUNCTIONAL TEST	SMOOTH OPERATION OPENING & CLOSING	MAJOR	OPERATION	100%	SMOOTH OPERATION OF VALVE		TC	2	1*		* 10% (MIN. 2 NO.)
3.3	HYDRAULIC TEST	LEAKAGE	CRITICAL	HYDRAULIC	100%	ORDERING SPEC. / BHEL APPD. DRG	NO LEAKAGE	TC	2	1*	-	* 10% (MIN. 2 NO.)

MANUFACTURER/ SUBCONTRACTOR		LEGEND: ! RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER	FOR CUSTOMER USE	APPROVED BY

QUALITY PLAN									Page 2 of 2			
BHEL	QP NO.	QA_BI_QP_117	REV.	00	DESCRIPTION				LEGENDS			
	SPEC. NO.	AS PER PO	REV.	AS PER PO	NRV WITH ALUMINIUM FLAP				P- PERFORMED BY		1- BHEL REP	
	DRG. NO.	APPROVED DRAWING AS PER PO	REV.	AS PER PO					W- WITNESSED BY		2- VENDOR	
									V- VERIFIED BY		3- SUBVENDOR	
SL. NO	COMPONENT OPERATION	CHARACTERISTICS	CLASSIFICATION	TYPE OF CHECK	QUANTUM	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
.									P	W	V	
3.4	SEAT LEAK TEST	LEAKAGE	CRITICAL	HYDRAULIC	100%	ORDERING SPEC. / BHEL APPD. DRG	NO LEAKAGE	TC	2	1*	-	* 10% (MIN. 2 NO.)
3.7	PRESERVATION & PAINTING		MAJOR	VISUAL	100%	BHEL SPEC		IR	2	-	-	

		LEGEND:	FOR CUSTOMER USE	
MANUFACTURER/ SUBCONTRACTOR		! RECORDS IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION. M: MANUFACTURER / SUBCONTRACTOR B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE 'P' PERFORM 'W' WITNESS AND 'V' VERIFICATION ALL 'W' INDICATED IN COLUMN 'N' SHALL BE 'CHP' OF CUSTOMER		APPROVED BY