

HPT STEAM EVACUATION VALVE BUTT WELDED AS PER ST47053, ST47025 WITH ADDEN. & ST47052

1) INLET PRESSURE: 46.84 ATA (A)

2) INLET TEMP: 500 DEG.C

3) OUTLET CONNECTED TO CONDENSER VACUUM

4) INLET PIPE SIZE: 168.3X7.11MM

5) OUTLET PIPE SIZE: 273X9.27

6) VALVE OPENING TIME < 2 SEC

7) MIN. FLOW AREA = 1500 SQ MM



उत्पाद मानक

STEAM TURBINE ENGINEERING
PRODUCT STANDARD

ST47025
HW0690097

पृष्ठ 4 का 1

Page 1 of 4

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

26.7.04


सामग्री सूची संका INVENTORY
NO.



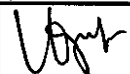
P-5522


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.



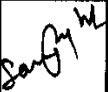
				नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE
			अनुवादक TRANSLATED BY		
TSX	D.L. OBEROI		निर्माणकर्ता WORKED BY	S.K. GUPTA	26.7.04
QAX	S.S. CHAUHAN		जांचकर्ता CHECKED BY	V.K. GUPTA	26.7.04
सहमत विभाग AGREED DEPTT.	नाम NAME	दिनांक एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षणकर्ता SUPERVISED BY	V.K. GUPTA	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 INVENTORY NO.	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 एवं हस्ताक्षर SIGN & DATE	सामग्री सूची संख्या INVENTORY NO.	REV. NO. 02	निर्माणकर्ता WORKED BY S.K.GUPTA
दिनांक एवं हस्ताक्षर SIGN & DATE	दिनांक एवं हस्ताक्षर SIGN & DATE	सामग्री सूची संख्या INVENTORY NO.	REV. NO. 02	जांचकर्ता CHECKED BY V.K.GUPTA
दिनांक एवं हस्ताक्षर SIGN & DATE	दिनांक एवं हस्ताक्षर SIGN & DATE	सामग्री सूची संख्या INVENTORY NO.	REV. NO. 02	दिनांक एवं हस्ताक्षर SIGN & DATE

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	सुपरसेडेस 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>			
			<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>			
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हस्ताक्षर एवं दिनांक SIGN & DATE 26.7.04	सामग्री सूची संख्या INVENTORY NO. P-5522	REV. NO. 02	निर्माणकर्ता WORKED BY S.K.GUPTA	जांचकर्ता CHECKED BY V.K.GUPTA	9/7/04 9/7/04	

		उत्पाद मानक STEAM TURBINE ENGINEERING PRODUCT STANDARD		ST47053																	
				पृष्ठ 3 का 1 Page 1 of 3																	
SUPERSEDES INVENTORY NO.		TECHNICAL SPECIFICATION OF PNEUMATICALLY ACTUATED HIGH PRESSURE STEAM EVACUATION VALVE																			
सामग्री सूची संख्या को अधिकृतित करता है		1.0 SCOPE This specification covers design, manufacturing, assembly, testing & supply of pneumatically actuated high pressure steam evacuation valve with manual operating facility with the help of hand wheel as per identification tag no. given in enquiry to be used in steam turbine evacuation system for evacuating of bottled up steam from steam turbine.																			
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		2.0 FUNCTION 2.1 During normal operation of TG set, these valves shall remain in tightly closed position and down steam side of the valve shall be subjected to condenser vacuum. The valve is to be suitably designed to prevent the ingress of air through valve glands into the system. 2.2 During load throw-off, this valve must open immediately in less than one second to evacuate bottled up steam from HP turbine. Up stream of this valve is connected to cold reheat (CRH) line while down stream is connected to condenser.																			
स्वत्वधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की संपत्ति है इसका प्रचलन एवं अप्रचलन का ये किसी भी तरह प्रयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए		3.0 COMPLIANCE WITH STANDARD Supply against this standard should have compliance with ASME B16.34 or approved equivalent.																			
हस्ताक्षर एवं दिनांक SIGN & DATE		4.0 MATERIALS Material of valve body and internals shall be selected by supplier and be informed to purchaser for their comments, if any.																			
सामग्री सूची संख्या INVENTORY NO.		5.0 END CONNECTIONS Weld neck type, suitable to weld with pipe size as mentioned in enquiry.																			
P-6342		6.0 WELDING In case of welding, it shall be carried out as per qualified procedures and welders in accordance with ASME Sec. IX. All welded joints/ends to be DP tested.																			
2016/08		<table border="1"> <tr> <td>नाम NAME</td> <td>दिनांक एवं हस्ताक्षर SIGNATURE & DATE</td> </tr> <tr> <td>अनुवादक TRANSLATED BY</td> <td></td> </tr> <tr> <td>निर्माणकर्ता WORKED BY</td> <td>S.K.Gupta 8/6/06</td> </tr> <tr> <td>जांचकर्ता CHECKED BY</td> <td>S.Goel 8/6/06</td> </tr> <tr> <td>पर्यवेक्षणकर्ता SUPERVISED BY</td> <td>S.Goel 9/6/06</td> </tr> <tr> <td>स्वीकृति APPROVED : AGM (PED)</td> <td>3.40</td> </tr> <tr> <td>निर्माण PREPARED : PED</td> <td>ISSUED : PED, BHEL HARDWAR</td> </tr> <tr> <td>जारी</td> <td>दिनांक DATE : 13.6.6</td> </tr> </table>				नाम NAME	दिनांक एवं हस्ताक्षर SIGNATURE & DATE	अनुवादक TRANSLATED BY		निर्माणकर्ता WORKED BY	S.K.Gupta 8/6/06	जांचकर्ता CHECKED BY	S.Goel 8/6/06	पर्यवेक्षणकर्ता SUPERVISED BY	S.Goel 9/6/06	स्वीकृति APPROVED : AGM (PED)	3.40	निर्माण PREPARED : PED	ISSUED : PED, BHEL HARDWAR	जारी	दिनांक DATE : 13.6.6
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सहमत विभाग AGREED DEPTT.		नाम NAME दिनांक एवं हस्ताक्षर DATE & SIGNATURE																			
Rev. 00		TSX QAX N.K.Manwani 10.6.06																			

दिनांक एवं हस्ताक्षर SIGN & DATE		उत्पाद मानक STEAM TURBINE ENGINEERING PRODUCT STANDARD		ST47053 पृष्ठ 3 का 2 Page 2 of 3	
सामग्री सूची संख्या को अधिकृत करता है	SUPERSEDES INVENTORY NO.	7.0 For completion of this specification, read this specification along with general specification of valve ST47025. 8.0 ACTUATOR DETAILS In case of air supply failure, valve shall be in closed position. For actuator details, refer specification no. ST47052.			
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	9.0 TESTING AND CERTIFICATION 9.1 The material of components of valve such as body, bonnet, stem and fasteners shall be tested as per relevant specification for its composition & mechanical properties. Seat Bush, if any shall be subjected to hardness testing. Mechanical testing on nuts include proof load test and drift expansion test. For remaining components, compliance certificate shall be furnished. 9.2 Pressure retaining parts of valves shall be subjected to NDT as per Table-I. 9.3 Hardened / stellitted valve disc and seat are to be subjected to LPI and hardness check. 9.4 Colour matching of valve seat and plug in case of metal to metal contact. 9.5 Functional test to Check travel, opening / closing time and hysteresis and smooth operation with actuator and hand wheel. 9.6 Hydraulic test and valve closure test shall be carried out on each valve in accordance with ASME B16.34. 9.7 Leakage test shall be as per class-V of ANSI/FCI 70-2 9.8 For actuator, refer ST47052				
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 कंपनी के हित में हानिकारक हो न किया जाए।	10.0 CROSS REFERRED STANDARDS ST47025, ST47052, ASME B16.34, ANSI/FCI 70-2				
सामग्री सूची संख्या INVENTORY NO. P-6342	REV. NO. 00		निर्माणकर्ता WORKED BY	S.K.GUPTA	 8/6/06
			जांचकर्ता CHECKED BY	S.GOEL	 8/6/06

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				पृष्ठ 3 का 3 Page 3 of 3																											
सामग्री सूची संख्या को अधिकृतित करना है	SUPERSEDES INVENTORY NO.	TABLE-I <table border="1"> <thead> <tr> <th>Valve Size NB in mm</th> <th>ANSI Class UPTO 300</th> <th>ANSI Class ABOVE 300 UPTO 600</th> <th>ANSI Class ABOVE 600 BELOW 900</th> <th>ANSI Class 900 & ABOVE & BELOW 4500</th> </tr> </thead> <tbody> <tr> <td>Less than 50</td> <td>Visual</td> <td>Visual</td> <td>Visual</td> <td>MPI</td> </tr> <tr> <td>50 & above but below 100</td> <td>Visual</td> <td>Visual</td> <td>MPI</td> <td>MPI & RT (on 10% of valves on 100% area)</td> </tr> <tr> <td>100 & above but less than 300</td> <td>Visual</td> <td>MPI</td> <td>MPI & RT (on 10% of valves on change of section & weld ends)</td> <td>MPI & RT (on 100% area)</td> </tr> <tr> <td>300 & above</td> <td>MPI</td> <td>MPI</td> <td>MPI & RT (on change of section & weld ends)</td> <td>MPI & RT (on 100% area)</td> </tr> </tbody> </table>					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)
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)																											
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स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत हेवी इलेक्ट्रिकल्स की सम्पत्ति है। इसका प्रत्यक्ष एवं अप्रत्यक्ष उपयोग, जो कि कंपनी के हित में हानिकारक हो न किया जाए। 8/6/06		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.																													
सामग्री सूची संख्या INVENTORY NO. P-6342-2	REV. NO. 00	निर्माणकर्ता WORKED BY S.K.GUPTA		8/6/06	जांचकर्ता CHECKED BY S.GOEL	8/6/06																									