

 संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 19390 मुख्य पृष्ठ PREFACE SHEET	
SUPERSEDES INVENTORY NO. समग्री सूची संख्या को अधिकृत करता है।	<u>ALLOY STEEL FORGINGS FOR HIGH TEMPERATURE SERVICE- H & T (Gr : X22CrMoV12-1)</u> केवल आंतरिक प्रयोग हेतु प्रदायक को देने से पूर्व इस मुखपृष्ठ को निकाल दें । FOR INTERNAL USE ONLY REMOVE THIS PREFACE BEFORE ISSUE TO SUPPLIERS. समतुल्य मानक/सूची आदि } COMPARABLE STANDARDS / CATALOGUES ETC. } सुझाए/सम्भावित प्रदायक एवं श्रेणी } SUGGESTED / PROBABLE SUPPLIERS AND GRADES. } As per PMD कोई अन्य जानकारी } ANY OTHER INFORMATIONS } Based on TLV 9248 02 05/2011	
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स्वत्वाधिकार एवं गोपनीय इस प्रलेख में दी गई सूचना भारत भारती 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 [Signature] 21/12		
INVENTORY NO. P-2169	स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE निर्माण : जारी : मानक विभाग PREPARED : MTE ISSUED : STANDARDS DIVISION दिनांक : DATE : 29.03.06	
REV 03 06.01.2012	Supersedes	GPN0 260

दिनांक एवं हस्ताक्षर SIGN & DATE				संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)		HW 19390 पृष्ठ का Page 1 of 4																			
SUPERSEDES INVENTORY NO TLV 9248/02, 05/11		ALLOY STEEL FORGINGS FOR HIGH TEMPERATURE SERVICE- H & T (Gr : X22CrMoV12-1) 1.0 GENERAL This specification governs the quality requirements of Alloy Steel Forgings for High Temperature Service (Grade: X22CrMoV12-1; material no. 1.4923) in Hardened and Tempered condition. 2.0 APPLICATION Used for steam turbine components such as discs, rings, bushings, bars, flanges etc. Forged / Rolled. 3.0 CONDITION OF DELIVERY Hardened and Tempered according to EN10269 table B.1. Unless otherwise specified in BHEL order / drawing, rough machining of the forgings shall be carried out. 4.0 DIMENSION AND TOLERANCES Forging shall be supplied to the dimensions and tolerances as per the ordering drawing. 5.0 MANUFACTURING: General requirements as per EN 10269. Degassed steel shall be used. Note: Raw material like Ingots/Blooms/Billets required for forgings shall be procured from BHEL approved sources along with test certificate." 6.0 HEAT TREATMENT Forgings shall be delivered in quenched and tempered condition (QT1) according to EN 10269, Table B.1 - Quench hardening: 1020 – 1070 °C / air, oil, water or polymer* - Tempering: 680°C - 740°C (min. 2 hours) * In case of polymer the cooling rate shall be comparable to cooling with oil The duration of the tempering as well as the controlled cooling rate are to be chosen to achieve minimum residual stresses. 7.0 CHEMICAL COMPOSITION Heat analysis in weight % shall be as follows: <table><tr><td>C</td><td>0.18 - 0.24</td><td>Si</td><td>≤ 0.50</td><td>Mn</td><td>0.40 - 0.90</td></tr><tr><td>P</td><td>≤ 0.025</td><td>S</td><td>≤ 0.015</td><td>Cr</td><td>11.00 - 12.50</td></tr><tr><td>Mo</td><td>0.80 – 1.20</td><td>V</td><td>0.25 - 0.35</td><td>Ni</td><td>0.30 – 0.80</td></tr></table>						C	0.18 - 0.24	Si	≤ 0.50	Mn	0.40 - 0.90	P	≤ 0.025	S	≤ 0.015	Cr	11.00 - 12.50	Mo	0.80 – 1.20	V	0.25 - 0.35	Ni	0.30 – 0.80
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हस्ताक्षर एवं दिनांक SIGN & DATE 9.1.12		नाम NAME दिनांक एवं हस्ताक्षर SIGNATURE & DATE																							
सामग्री सूची संख्या INVENTORY NO P-2169		TSX B. CHOUDHARY IPSC V.K.CHAUHAN STE D. K. RAY QAX S.AGRawal सहमत विभाग AGREED DEPTT नाम NAME दिनांक एवं हस्ताक्षर DATE & SIGNATURE																							
		अनुवादक TRANSLATED BY				PANKAJ AGARWAL																			
		निर्माणकर्ता WORKED BY				ASHISH RANJAN																			
		जांचकर्ता CHECKED BY				T S GOPALKRISHNAN																			
		पर्यवेक्षणकर्ता SUPERVISED BY				Pankaj 6/1/12 A.Ranjan 6/1/12 Jellham 6/1/12																			
		स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE				GP NO 2.60																			
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COPYRIGHT AND CONFIDENTIAL The information on this document 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.		Details of all heat treatment cycle followed. Results of chemical analysis including trace elements. Results of mechanical tests, including hardness test. All individual values shall be reported. Results of ultrasonic tests Confirmation of the visual inspection Confirmation of the verification inspection Results of additional tests called for in the drawing/order. Mill test certificate					
		14.0 DEVIATIONS Any deviation from this delivery specification has to be reported to BHEL immediately using Performa PU-25 supplied with the order. Any deviation is generally accepted only if this has been approved by BHEL in a written form. 15.0 CLEARANCE FOR DELIVERY The clearance for dispatch is based on the total results of all tests performed considering the service stresses of the component. BHEL has the right to accept deviations of the specified values, if it is shown by individual judgment that the service properties are not reduced. The clearance does not release the manufacturer from the responsibility for hidden defects that are detected at later stage of manufacturing. 16.0 PACKING AND MARKING: Forgings shall be suitably packed to prevent corrosion and damage during transit. Machined surfaces shall be properly protected with anti-corrosive compounds. Each package or forging (when supplied separately) shall be legibly marked with the following information: HW19390, BHEL Order No., Drawing no., Batch No., Weight, Supplier's name. 17.0 REFERRED STANDARDS (Latest Publications Including Amendments): 1. EN10269 2. EN 10228-3. 3. EN10308 4. EN10002- 5 5. ASTM E45 6. ASTM E 112 7. ISO 643					
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समग्री सूची संख्या INVENTORY NO P-2169		निर्माणकर्ता WORKED BY A. Ranjan		जांचकर्ता CHECKED BY Gopal Krishnan		06.01.12	