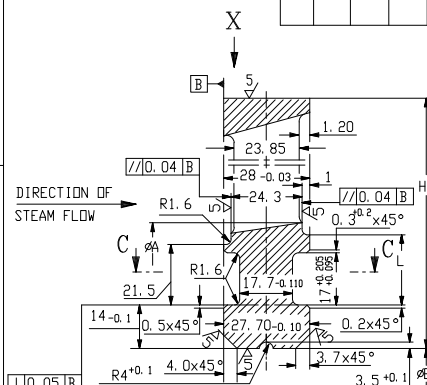


COPYRIGHT AND CONFIDENTIAL

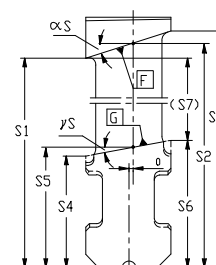
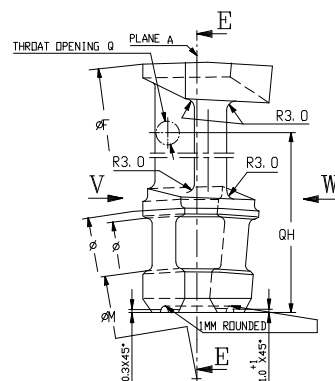
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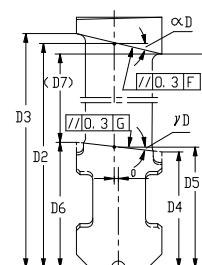
3.2/
▽ ALL OVER EXCEPT
OTHERWISE STATED

[illegible]

SECTION EE




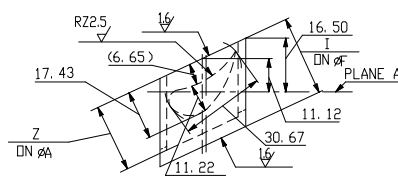
VIEW W
SUCTION SIDE



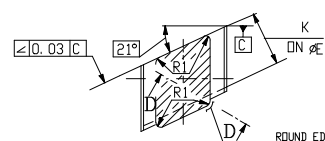
VIEW V
PRESSURE SIDE

TECHNICAL REQUIREMENTS:

1. TOLERANCES
-  PROFILE FORM ; UNDULATION LENGTH >14
- ±0.10 MAX. PROFILE THICKNESS
- 0.30 PROFILE LENGTH
- 0.30 BLADE BENDING
- ±0.30° PROFILE ANGLE
- ±0.30 S AND D DIMENSIONS
2. BLADE PROFILE DRG. 11010205021
3. ROOT AND GROOVE DRG. 41010742011
- * 4. FOR TAPER GRINDING AND THICK BLADE REQUIREMENT,
REFER PLANT STANDARD HW0992018 .



VIEW X





SECTION CC



SECTION DD

SUPERSEDES OLD DRAWING
UNDER THE SAME NUMBER

				CMS- No./ CBOM No. 01010242000				STATUS OF DRG 01010242000		TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT				STEAM TURBINE															
GRADE OF UNTOL.DIM				AGRED DEPT TBM		NAME CHUDHURY		SIGN Sd/-		DATE 17.6.93																			
M/CG.-E/M/F AA0230208																													
WELDING-A/B/C/D AA0621104																													
GAS CUTTING-T3'AA0621101																													
REV		DATE		ALTERED CHECKED		REV 01		DATE 12.12.03		ALTERED HJAL CHECKED P.K. Sd/-		 BHARAT HEAVY ELECTRICALS LTD. RANIPUR, HARDWAR		DRN CHD APPK		NAME HANS LAL T.K.G. K.M.S.		SIGN Sd/- Sd/- Sd/-		DATE 6.05.93 25.5.93 01.09.93		NO. OF VAR 73 74 NO. OF ITEMS 75 77							
T.R.No.4 IS ADDED. THIS DRAWING SUPERSEDES UNDER THE SAME NUMBER, REVISED DRAWING DEPOSITED IN WRENCH SERVICE.																DEPT STE CODE 4011				SCALE NTS		WEIGHT (KG) _____		REF. TO ASSY. DRG. 01010242000		ITEM No. _____			
(STE-03-F1314)																TITLE : MOVING BLADE T4-28-57				CARD CODE		DRAWING NO. 2-10102-42001		SHEET No. 1		No. OF SHEETS 1		22 23 24	
5								4																					

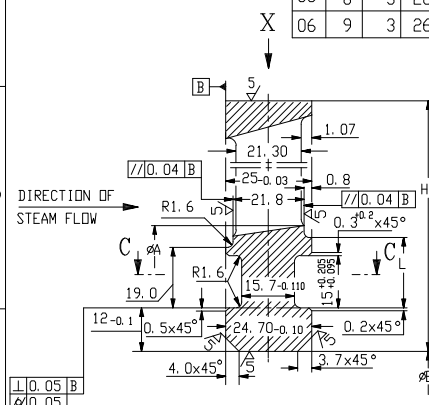
SIZE A2

DRAWING NO. 3

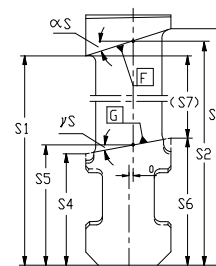
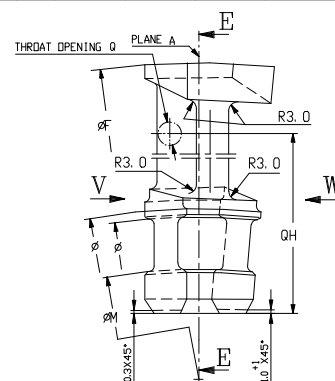


VAR	STAGE	QTY/ROW (INCL. LOCK BLADE)	H	D1	D2	D3	D4	D5	D6	D7	ØD		P/D		S1	S2	S3	S4	S5	S6	S7
											DEG.	MIN.	DEG.	MIN.							
01	4	103	104.5	96.9	97.1	97.3	40.5	40.4	40.2	56.7	0	55	0	-40	96.5	97.0	97.4	40.2	40.3	40.5	56.0
02	5	105	106.5	98.4	98.8	99.3	40.5	40.4	40.2	58.2	2	4	0	-40	97.9	98.7	99.4	40.2	40.4	40.5	57.4
03	6	105	108.5	100.4	100.8	101.3	40.5	40.4	40.2	60.2	2	4	0	-40	99.9	100.7	101.4	40.2	40.4	40.5	59.4
04	7	105	110.5	102.4	102.8	103.3	40.5	40.4	40.2	62.2	2	4	0	-40	101.9	102.7	103.4	40.2	40.4	40.5	61.4
05	8	105	112.5	104.4	104.8	105.3	40.5	40.4	40.2	64.2	2	4	0	-40	103.9	104.7	105.4	40.2	40.4	40.5	63.4
06	9	105	114.5	106.4	106.8	107.3	40.5	40.4	40.2	66.2	2	4	0	-40	105.9	106.7	107.4	40.2	40.4	40.5	65.4
VAR	STAGE	ØS		P/S		ØF	ØA	ØM	ØE	L	I	Z	K	Q	QH	TAPER VALUES FOR JIG LENGTH 1000 MM			EH*		
		DEG.	MIN.	DEG.	MIN.											EX	EY				
01	4	2	4	0	41	788.0	660	603	579	19.00	22.44	18.79	16.49	8.27	69.0	11.16	58.20	16.51			
02	5	3	26	0	41	792.0	660	603	579	19.00	22.12	18.44	16.17	8.06	70.0	10.94	57.07	16.19			
03	6	3	26	0	41	796.0	660	603	579	19.00	22.23	18.44	16.17	8.10	71.0	10.94	57.05	16.19			
04	7	3	26	0	41	800.0	660	603	579	19.00	22.35	18.44	16.17	8.13	72.0	10.93	57.04	16.20			
05	8	3	26	0	41	804.0	660	603	579	19.00	22.46	18.44	16.17	8.17	73.0	10.93	57.02	16.20			
06	9	3	26	0	41	808.0	660	603	579	19.00	22.57	18.44	16.17	8.20	74.0	10.93	57.00	16.20			

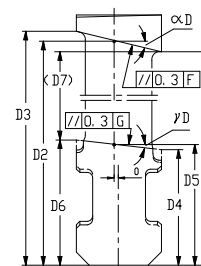
3.2/
▽ ALL OVER EXCEPT
OTHERWISE STATED



SECTION EE




VIEW W
SUCTION SIDE



VIEW V
PRESSURE SIDE

TECHNICAL REQUIREMENTS:

1. TOLERANCES
-  0.10 PROFILE FORM ; UNDULATION LENGTH ≥ 12.5

±0.10 MAX. PROFILE THICKNESS

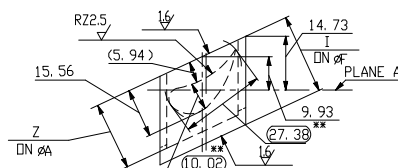
-0.30 PROFILE LENGTH

0.30 BLADE BENDING

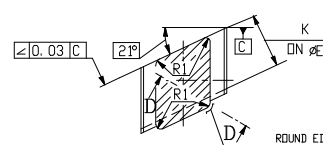
±0.30° PROFILE ANGLE

±0.30 S AND D DIMENSIONS

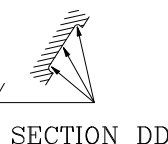
2. BLADE PROFILE DRG. 11010205021
3. ROOT AND GROOVE DRG. 41030412011
- * 4. FOR TAPER GRINDING AND THICK BLADE REQUIREMENT,
REFER PLANT STANDARD HW0992018 .



VIEW X



SECTION CC



SECTION DD

GRADE OF UNTOL.DIM
M/CG.- C /M/ F AA0230208
WELDING-A/B/C/D AA0621104
GAS CUTTING-'T3'AA0621101

REV	DATE	ALTERED
		CHECKED

GMS No./ CBOM No. 01010242000			STATUS OF DRG U
AGREED DEPT	NAME	SIGN	DATE
TBM	B.UNIYAL	Sd/-	17.6.9


REV	DATE	ALTERED	HLAL	Sd/-
02	12.12.03	CHECKED	P.K.B.	Sd/-
<p>T.R.No.4 IS ADDED. THIS DRAWING SUPERSEDES UNDER THE SAME NUMBER. REVISED DRAWING DEPOSITED IN WRENCH SERVER.</p> <p>(STE-03-F1314)</p>				

SUPERSEDES OLD DRAWING
UNDER THE SAME NUMBER

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT	
---	--

STEAM TURBINE

	BHARAT HEAVY ELECTRICALS LTD.		DRN	NAME	SIGN	DATE	NO. OF VAR
	RANIPUR, HARDWAR			HANS LAL	Sd/-	6.05.93	
			CHD	T.K.G.	Sd/-	25.5.93	
			APPD	K.S.G.	Sd/-	21.05.93	

DEPT STE		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM No.	NO. OF ITEMS
CODE 4011		NTS	_____	01010242000	—	75

TITLE : MOVING BLADE
T4-25-57

CARD CODE	DRAWING NO.		75 7	
	2-10102-42002			
	7	22	23	2
	SHEET No. 1		No. OF SHEETS 1	

SIZE A2

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

FORM DG 44(B)

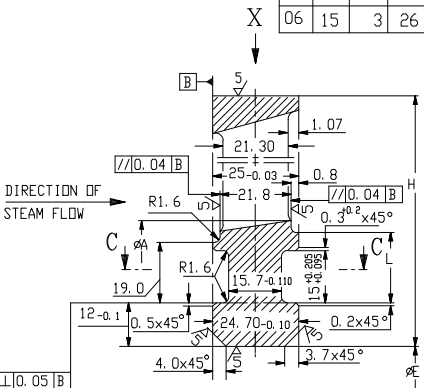
2-10102-42003

DRAWING NO.

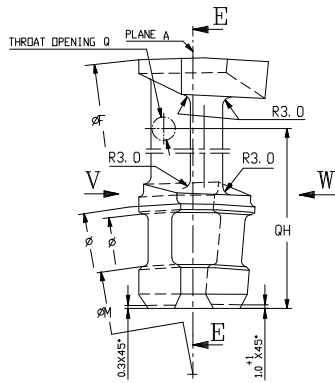
R

VAR	STAGE	QTY/ROW (INCL LOCK BLADE)	H	D1	D2	D3	D4	D5	D6	D7	αD		γD		S1	S2	S3	S4	S5	S6	S7
											DEG.	MIN.	DEG.	MIN.							
01	10	105	116.5	108.4	108.8	109.3	40.5	40.4	40.2	68.2	2	4	0	-40	107.9	108.7	109.4	40.2	40.4	40.5	67.4
02	11	107	118.5	110.4	110.8	111.3	40.5	40.4	40.2	70.2	2	4	0	-40	109.9	110.7	111.4	40.2	40.4	40.5	69.4
03	12	104	120.5	112.4	112.8	113.3	40.5	40.4	40.2	72.2	2	4	0	-40	111.9	112.7	113.4	40.2	40.3	40.5	71.4
04	13	96	123.5	115.4	115.8	116.3	40.5	40.4	40.2	75.2	2	4	0	-40	114.8	115.6	116.4	40.1	40.3	40.4	74.4
05	14	107	126.5	118.4	118.8	119.3	40.5	40.4	40.2	78.2	2	4	0	-40	117.9	118.7	119.4	40.2	40.4	40.5	77.4
06	15	107	129.5	121.4	121.8	122.3	40.5	40.4	40.2	81.2	2	4	0	-40	120.9	121.7	122.4	40.2	40.4	40.5	80.4
VAR	STAGE	αS		γS		ϕF	ϕA	ϕM	ϕE	L	I	Z	K	Q	QH	TAPER VALUES FOR JIG LENGTH 1000 MM					
		DEG.	MIN.	DEG.	MIN.											EX	EY	EH	*		
01	10	3	26	0	41	812.0	660	603	579	19.00	22.68	18.44	16.17	8.24	75.0		10.93		56.99	16.20	
02	11	3	26	0	41	816.0	660	603	579	19.00	22.37	18.09	15.87	8.03	76.0		10.72		55.91	15.90	
03	12	3	26	0	41	820.0	660	603	579	19.00	23.12	18.61	16.33	8.44	77.0		11.02		57.51	16.35	
04	13	3	40	0	41	826.0	660	603	579	19.00	25.24	20.16	17.69	9.67	78.5		11.94		62.27	17.71	
05	14	3	26	0	41	832.0	660	603	579	19.00	22.81	18.09	15.87	8.17	80.0		10.71		55.86	15.90	
06	15	3	26	0	41	838.0	660	603	579	19.00	22.97	18.09	15.87	8.22	81.5		10.70		55.84	15.90	

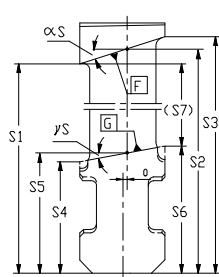
3.2/
▽ ALL OVER EXCEPT
OTHERWISE STATED



SECTION EE



VIEW W
SUCTION SIDE



ON DINIENDO

32/ ☒ ALL OVER EXCEPT
OTHERWISE STATED

File No. HEP-THML/2/2026-HEP-STM20100 (Computer No. 264868)
Generated from eOffice by Sandeep Kumar Saxena ENGINEER(SKS)-ASC14200-HEP ENGINEER HEP-HEAVY ELECTRICALS PLANT (HEP) on 09/01/2026 04:00 pm


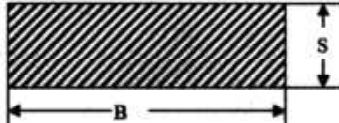
CHARTER NO.


32/ ALL OVER EXCEPT
OTHERWISE STATED


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Generated from office by Sandeep Kumar Saxena ENGINEER(SKS)-ASC14200-HEP ENGINEER, HEP-HEAVY ELECTRICALS PLANT (HEP) on 09/01/2026 04:00 pm


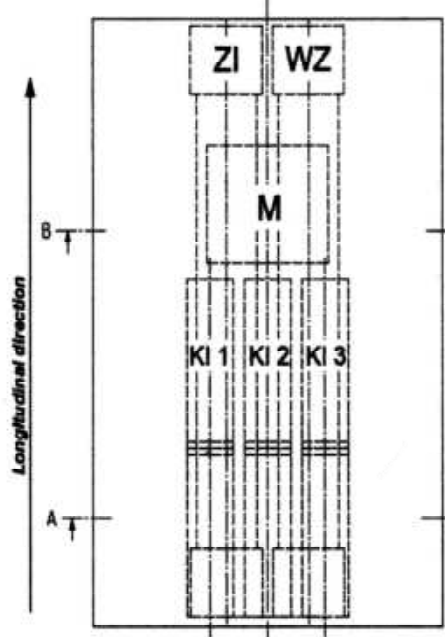
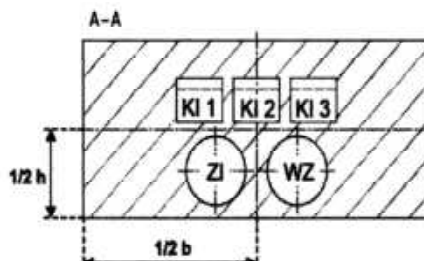
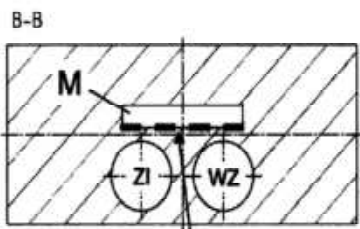
DRAWING NO.

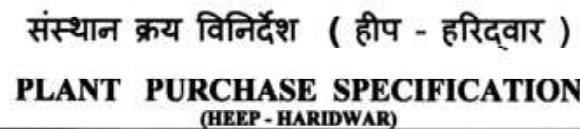
32/ ALL OVER EXCEPT
OTHERWISE STATED

प्रकृत एवं तिथि SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 10687 पृष्ठ का Page 1 of 8																																				
SUPERSEDES INVENTORY NO. TLV 9248/06, Dec '13	HEAT RESISTANT STEEL BARS FOR TURBINE BLADES GRADE: X22CrMoV121 +QT2																																						
COPYRIGHT AND CONFIDENTIAL The information on these 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.	<p>1.0 General: This specification governs the quality of Steel rectangular bars in steel grade X22CrMoV121, material no. 1.4923 EN10269.</p> <p>2.0 Application: For machining of blades for Steam Turbine.</p> <p>3.0 Condition of Delivery: Rolled or Forged and Heat Treated.</p> <p>4.0 Dimension and Tolerances : The dimensions shall be as per purchase order. Unless otherwise stated in the purchase order, length of bars shall be 3 - 6 meters with maximum 10% short down to 1 meter. Tolerance and straightness of bars shall be as follows:</p> <div style="text-align: center;">  </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>B, width across flats (mm)</th> <th>Allowable deviation on B, mm</th> <th>S, thickness (mm)</th> <th>Allowable deviation on S, mm</th> </tr> </thead> <tbody> <tr> <td>B ≤ 35</td> <td>+ 1.5</td> <td>S ≤ 20</td> <td>+ 1</td> </tr> <tr> <td>35 < B ≤ 75</td> <td>+ 2</td> <td>20 < S ≤ 40</td> <td>+ 2</td> </tr> <tr> <td>B > 75</td> <td>+ 3</td> <td>S > 40</td> <td>+ 3</td> </tr> </tbody> </table> <p>Twisting and bending of the bars shall not exceed 1mm per meter length of the bar. Bulging on the sides shall not be more than 0.01 X B and 0.02 X S respectively.</p> <p>5.0 Manufacture: Degassed steel (e.g. vacuum degassed) shall be used. Cast ingot is to be used as initial material for production of the bars. The manufacturing process must ensure a homogenous grain structure over the entire length of the bar and the bar cross section.</p> <p>6.0 General Requirements:</p> <ul style="list-style-type: none"> Prerequisite requirement for approval of a new vendor is a successful Process qualification. Manufacturing process established during this shall be the basis for future manufacture. 			B, width across flats (mm)	Allowable deviation on B, mm	S, thickness (mm)	Allowable deviation on S, mm	B ≤ 35	+ 1.5	S ≤ 20	+ 1	35 < B ≤ 75	+ 2	20 < S ≤ 40	+ 2	B > 75	+ 3	S > 40	+ 3																				
B, width across flats (mm)	Allowable deviation on B, mm	S, thickness (mm)	Allowable deviation on S, mm																																				
B ≤ 35	+ 1.5	S ≤ 20	+ 1																																				
35 < B ≤ 75	+ 2	20 < S ≤ 40	+ 2																																				
B > 75	+ 3	S > 40	+ 3																																				
प्रकृत एवं तिथि SIGN & DATE 31/12	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">TSX</td> <td style="width: 25%;">V. Srivastava</td> <td style="width: 15%;">31/12/15</td> <td style="width: 15%;"></td> <td style="width: 15%;">नाम NAME</td> <td style="width: 20%;">हस्ताक्षर एवं तिथि SIGNATURE & DATE</td> </tr> <tr> <td>PSC</td> <td>V.K. Chandra</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>QAX</td> <td>U. K. Panda</td> <td></td> <td>अनुवादक TRANSLATED BY</td> <td></td> <td></td> </tr> <tr> <td>STE</td> <td>P. K. Banerjee</td> <td>31/12/15</td> <td>निर्माणकर्ता WORKED BY</td> <td>PANKAJ AGARWAL</td> <td>31/12/15</td> </tr> <tr> <td></td> <td></td> <td></td> <td>जांचकर्ता CHECKED BY</td> <td>ASHISH RANJAN</td> <td>31/12/15</td> </tr> <tr> <td>सहमत विभाग AGREED DEPTT</td> <td>नाम NAME</td> <td>तिथि एवं हस्ताक्षर DATE & SIGNATURE</td> <td>पर्यवेक्षक SUPERVISED BY</td> <td>T S GOPAL KRISHNAN</td> <td>31/12/15</td> </tr> </table>			TSX	V. Srivastava	31/12/15		नाम NAME	हस्ताक्षर एवं तिथि SIGNATURE & DATE	PSC	V.K. Chandra					QAX	U. K. Panda		अनुवादक TRANSLATED BY			STE	P. K. Banerjee	31/12/15	निर्माणकर्ता WORKED BY	PANKAJ AGARWAL	31/12/15				जांचकर्ता CHECKED BY	ASHISH RANJAN	31/12/15	सहमत विभाग AGREED DEPTT	नाम NAME	तिथि एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षक SUPERVISED BY	T S GOPAL KRISHNAN	31/12/15
TSX	V. Srivastava	31/12/15		नाम NAME	हस्ताक्षर एवं तिथि SIGNATURE & DATE																																		
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STE	P. K. Banerjee	31/12/15	निर्माणकर्ता WORKED BY	PANKAJ AGARWAL	31/12/15																																		
			जांचकर्ता CHECKED BY	ASHISH RANJAN	31/12/15																																		
सहमत विभाग AGREED DEPTT	नाम NAME	तिथि एवं हस्ताक्षर DATE & SIGNATURE	पर्यवेक्षक SUPERVISED BY	T S GOPAL KRISHNAN	31/12/15																																		
प्रकृत एवं तिथि INVENTORY NO. P-2006	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3" style="text-align: center;"> स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE </td> <td style="text-align: center;"> Gr. No. 260 </td> </tr> <tr> <td style="width: 15%;">REV 05</td> <td style="width: 25%;">Supersedes</td> <td style="width: 15%;">31/12/15</td> <td style="width: 45%;"> तैयार : मानक विभाग PREPARED : MTE जारी : मानक विभाग ISSUED : STANDARDS DIVISION तिथि : 31.12.15 </td> </tr> </table>			स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE			Gr. No. 260	REV 05	Supersedes	31/12/15	तैयार : मानक विभाग PREPARED : MTE जारी : मानक विभाग ISSUED : STANDARDS DIVISION तिथि : 31.12.15																												
स्वीकृति : संस्थान मानक समिति APPROVED : PLANT STANDARDS COMMITTEE			Gr. No. 260																																				
REV 05	Supersedes	31/12/15	तैयार : मानक विभाग PREPARED : MTE जारी : मानक विभाग ISSUED : STANDARDS DIVISION तिथि : 31.12.15																																				

संस्था का लोगो 	संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)		HW 10687 पृष्ठ का Page 3 of 8													
प्रमाणित की तिथि SIGN & DATE 5/11/15	सुपरसेस INVENTORY NO. 2006	<p>The metallographic investigations shall be performed on the hardest and softest bar with an area of at least 320mm² each. The areas to be investigated must be in the longitudinal direction. The longitudinal direction must be indicated in the documentation.</p> <p>8.2.1 Mechanical Properties:</p> <p>Hardness of the bars in a test unit shall be verified by Brinell hardness testing in accordance with ISO 6506 -1, HBW10/3000 or HBW 5/750 may be used.</p> <p>The surface of the bar shall be prepared in the area of the hardness measurement so that the result is not affected by the surface condition.</p> <p>Hardness testing shall be performed on 10% of each test unit but at least on 10 bars or on each bar if test unit is less than 10 bars. The greatest resulting difference in hardness shall not exceed 35HBW.</p> <p>Mechanical properties shall be determined on the hardest and softest bar determined in a test unit.</p> <p>Tensile testing shall be performed in accordance with ISO 6892 -1 or ASTM E8M (round specimen with L₀ = 50mm and d₀ = 10mm) or ASTM E8M (standard specimen in accordance with figure 8).</p> <p>Standard specimens Charpy (V-notch) in accordance with ISO 148 -1 shall be used for determining the absorbed impact energy.</p> <p>The following properties must be achieved at room temperature:</p> <table border="1"> <thead> <tr> <th>0.2 % Proof Stress (N/mm²)</th> <th>Tensile Strength (N/mm²)</th> <th>Elongation After Fracture (%)</th> <th>Reduction in area %</th> <th>Impact Energy (J)¹</th> <th>Hardness HBW</th> </tr> </thead> <tbody> <tr> <td>≥ 700</td> <td>900 - 1050</td> <td>≥ 11</td> <td>≥ 35</td> <td>≥ 20</td> <td>265 - 310</td> </tr> </tbody> </table> <p>¹ Average of 3 specimens and minimum value for two specimens in accordance with EN10021, where the lowest value shall be at least 14 Joule.</p> <p>8.2.2 Microstructure:</p> <p>Microstructure must be uniform, without porosity, excessive segregation or other inhomogeneities.</p> <p>8.2.2.1 Cleanliness:</p> <p>The cleanliness shall be determined as per ASTM E45 method A. Acceptance criteria:</p> <p>Inclusion: Thin Series Type A, B, C: 2 max Type D: 2.5max</p> <p>Inclusions: Heavy Series Type A, B, C, D: 1.5max</p> <p>Maximum Number and dimension of globular inclusions (type D) IR (D) = n₁ + 2.5n₂, IR (D) is converted to an area of 160mm² IR (D) ≤ 10 n = number of globular inclusions n₁ (25-50 μm); n₂ (51-75 μm)</p> <p>Any material discontinuities present at the inclusion must also be accounted for in determining the size of the globular inclusion.</p> <p>Inclusions > 75 μm, including any material discontinuities are not allowable.</p>			0.2 % Proof Stress (N/mm ²)	Tensile Strength (N/mm ²)	Elongation After Fracture (%)	Reduction in area %	Impact Energy (J) ¹	Hardness HBW	≥ 700	900 - 1050	≥ 11	≥ 35	≥ 20	265 - 310
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प्रमाणित की तिथि SIGN & DATE 5/11/15	सुपरसेस INVENTORY NO. 2006	REV 05	निर्माणकर्ता WORKED BY Ashish Ranjan	1.1.15												
			जांचकर्ता CHECKED BY Gopal Krishnan	1.1.15												

प्रमाणित एवं दिनांक SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)		HW 10687	
				पृष्ठ का Page 5 of 8	
SUPERSEDES INVENTORY NO. जमादी पूर्ण संख्या की INVENTORY NO.	- An undersized specimen in accordance with ISO 148 -1 for impact test specimen. Undersize dimension to be reported. - If dimension do not allow testing in the transverse direction, even with special specimen, testing will be carried out in the longitudinal direction only. Intergranular Fracture: The fraction of Intergranular fracture shall be determined over the entire brittle fracture portion of the fracture surface of the impact test specimens tested at room temperature. The fraction of Intergranular fracture shall not exceed 10%. This test is not required for materials which indicate $\geq 90\%$ ductile fracture at room temperature. Magnetic Particle Test: Performance of MT testing by the magnetic flux leakage method, alternating current phase shifted and a field strength of 20 – 65A/cm. Distribution, type and size of grain structure in-homogeneities (e.g. segregation or delta ferrite) shall not result in MT indications. 10.0 Identification Marking: All bars are to be marked with following information: - Purchase Order Number - Size - Material Grade - Supplier Identification The details are to be clearly stamped and encircled by oil paint. Each bar shall be painted with gold colour on both ends. All the bars shall be suitably packed to protect them against corrosion and damage during transportation. Bars having maximum and minimum hardness (from which test samples are taken) shall be clearly marked by oil paint for easy identification. Their respective hardness values shall also be punched on these bars. 11.0 Documentation: Prior to, but in no case later than the delivery of the material, an inspection certificate as per EN 10204 shall be provided to BHEL in duplicate; this certificate must contain the following data: (a) Material code no and P.O. number (b) Material designation (c) Heat no., heat analysis and melting methods (d) Complete information on all heat treatments performed (d) Mechanical test results including hardness range and the metallurgical examination. (e) Results of non-destructive tests, UT inspection report (f) Confirmation of the material identity check (g) Confirmation of the dimensions and visual inspection 12.0 Cross Referred Standards: EN10269 ,ISO 6506-1 , ISO 6892-1 , EN 10021, ASTM E8M , ISO 148-1, EN 10021, ASTM E 45, TWP 1204, ASTM E 8, ASTM E112 , ISO 643,ASTM A 370, ISO 6892 -2, EN 10204.				
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जमादी पूर्ण संख्या की INVENTORY NO. 1-2006	REV 05				
		निर्माणकर्ता WORKED BY Ashish Ranjan	1.1.15		
		जांचकर्ता CHECKED BY Gopal Krishnan	1.1.15		

प्रकृत एवं स्थिति SIGN & DATE		संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 10687 पृष्ठ का Page 6 of 8										
SUPERSEDES INVENTORY NO. प्रकृत एवं स्थिति SIGN & DATE	Attachment 1 Standard Testing												
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.	<div style="display: flex; align-items: center;"> <div style="flex: 1;">  </div> <div style="flex: 1;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Label</th> <th>Specimen</th> </tr> </thead> <tbody> <tr> <td>ZI</td> <td>Tensile Specimen Centre</td> </tr> <tr> <td>WZ*</td> <td>Hot Tensile Specimen</td> </tr> <tr> <td>KI 1 - KI 3</td> <td>Notched Impact Specimen Centre</td> </tr> <tr> <td>M</td> <td>Metallographic Specimen</td> </tr> </tbody> </table> <p style="font-size: small;">* If required in material specification</p> </div> </div> <div style="display: flex; align-items: center; margin-top: 20px;"> <div style="flex: 1;">  </div> <div style="flex: 1;">  </div> <div style="flex: 1; border: 1px solid black; padding: 5px; margin-left: 10px;"> <p style="font-size: small;">Lower Surface of the Metallographic Specimen has to be examined. Longitudinal direction must be indicated in the documentation. $A \geq 320 \text{ mm}^2$</p> </div> </div>			Label	Specimen	ZI	Tensile Specimen Centre	WZ*	Hot Tensile Specimen	KI 1 - KI 3	Notched Impact Specimen Centre	M	Metallographic Specimen
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प्रकृत एवं स्थिति SIGN & DATE 30/5-													
प्रकृत एवं स्थिति INVENTORY P-2076	REV 05	निर्माणकर्ता WORKED BY Ashish Ranjan	1.1.15										
		जाँचकर्ता CHECKED BY Gopal Krishnan	1.1.15										

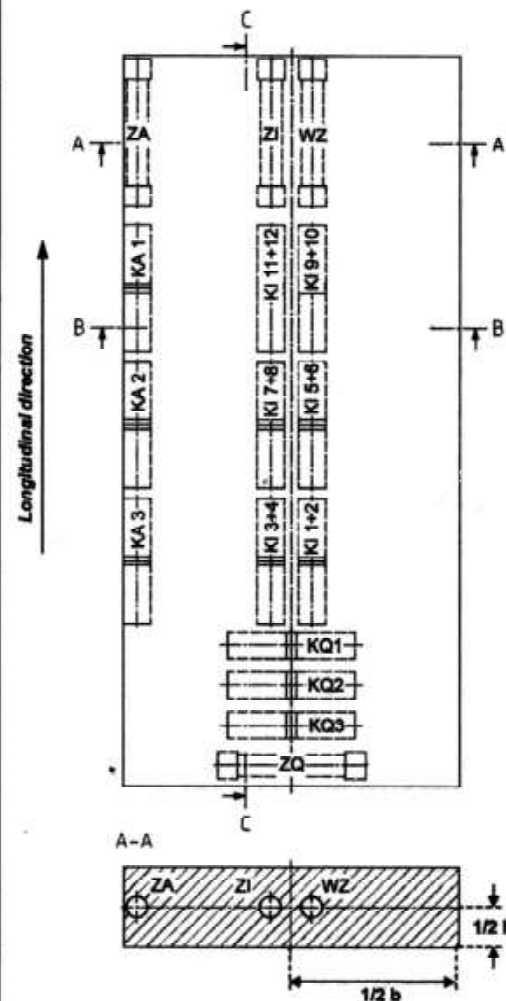


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पृष्ठ का
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Attachment 2, Page 1/2

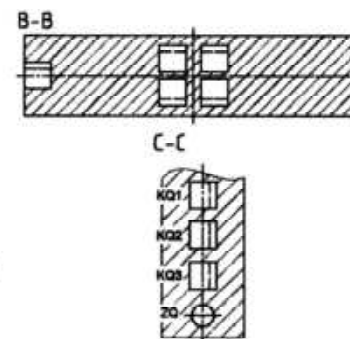
Process Qualification



Label	Specimen
Z1	Tensile Specimen Centre
ZA	Tensile Specimen Rim
ZQ	Tensile Specimen Transverse
WZ*	Hot Tensile Specimen
K1 1 - K1 12	Notched Impact Specimen Centre (FAIT)
KA 1 - KA 3	Notched Impact Specimen Rim
KQ 1 - KQ 3	Notched Impact Specimen Transverse

* If required in material specification

Note the notch positions of the notch impact specimens (see B - B and C - C).



REV 05

WORKED BY

Ashish Ranjan

जांचकर्ता
CHECKED BY

	Gopal Krishnan
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✓	1.1.15
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✓	1.1.15
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संस्थान क्रय विनिर्देश (हीप - हरिद्वार) PLANT PURCHASE SPECIFICATION (HEEP - HARIDWAR)	HW 10687 पृष्ठ का Page 8 of 8							
	Attachment 2, Page 2/2							
Process Qualification								
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M	Metallographic Specimen							
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<p>Upper Surface of the Metallographic Specimen has to be examined. Longitudinal direction must be indicated in the documentation. $A \geq 320 \text{ mm}^2$</p> <p>Lower Surface of the specimen has to be examined in Magnetic Particle Test.</p>								
REV 05	WORKED BY Ashish Ranjan	1.1.15						
CHECKED BY Gopal Krishnan	2/2/15							