Technical Specification for BHEL Enquiry No. E1443075

Enquiry items along with quantities:

It. No.	Size & Item description	Technical requirement	Nominal Quantity in Kg	GeM Quantity in Kg
1	140 DIA HT BAR TO BHEL SPEC. AA19358 REV. 08	140 MM DIA 1.5 % NICRMO HOT ROLLED / FORGED, HARDENED AND TEMPERED STEEL ROUND BARS TO SPECIFICATION AA 19358 REV.08 AND PRODUCT STANDARD WTM 0001 REV.00 MATERIAL IN RANDOM LENGTH OF 3 TO 6 METERS.STRAIGHTNESS WITHIN 3MM/METER. QUANTITY VARIATION +/- 10 % ACCEPTABLE. ALL OTHER DETAILS AS PER PRODUCT STANDARD WTM 0001 REV. 00 AND SPEC. AA 19358 REV. 08. ULTRA SONIC TEST TO BE CARRIED OUT AS PER BHEL SPEC AA0850118 (ACCEPTANCE CATEGORY 2)	30000	33000
2	160 DIA HT ROUND BAR TO BHEL SPEC. AA19358 REV.08	160 MM DIA 1.5 % NICRMO HOT ROLLED / FORGED, HARDENED AND TEMPERED STEEL ROUND BARS TO SPECIFICATION AA 19358 REV.08 AND PRODUCT STANDARD WTM 0001 REV.00 MATERIAL IN RANDOM LENGTH OF 3 TO 6 METERS.STRAIGHTNESS WITHIN 3MM/METER. QUANTITY VARIATION +/- 10 % ACCEPTABLE. ALL OTHER DETAILS AS PER PRODUCT STANDARD WTM 0001 REV. 00 AND SPEC. AA 19358 REV. 08. ULTRA SONIC TEST TO BE CARRIED OUT AS PER BHEL SPEC AA0850118 (ACCEPTANCE CATEGORY 2)	16000	17600

Quantity variation as per below:

Item-1, Supplies quantity are to be restricted between 33000 KG to 27000 KG

Item-2, Supplies quantity are to be restricted between 17600 KG to 14400 KG

Note: Quantities specified in GeM Bid are inclusive of +10% tolerance. However, BHEL's regularization PO shall be placed on Nominal Quantity as mentioned above with +/-10% Quantity Variation.

Item No.	Description	GeM QTY in Kg	Delivery Period
1	140 DIA HT BAR TO BHEL SPEC. AA19358 REV. 08	33000	1st Lot-11000 Kg: 75 days from GeM PO 2nd Lot-11000 Kg: 110 days from GeM PO 3rd Lot-11000 Kg: 140 days from GeM PO
2	160 DIA HT ROUND BAR TO BHEL SPEC. AA19358 REV.08	17600	1st Lot-8800 Kg: 75 days from GeM PO 2nd Lot-8800 Kg: 110 days from GeM PO

Technical Pre-Qualification Requirement for supply of Alloy steel forging round Bar(PI-120243005)

Sl.no.	Description of pre-qualification requirement	Manufacturer's Response	
		Complied/Not complied	Supporting documents required to accept compliance
1	Manufacturer of steel Round Bar/their authorized representative.	YES/NO	Relevant Certificate of being manufacturer (for manufacturer not registered with BHEL) / authorization letter with validity(for authorized representative). Firm name and address from whom bars is indended to be supplied to be furnished.
2	Vendors should have experience of Manufacturing,Material Testing &supplying Alloy Steel forging Round Bar (1.5% Nickel-Chromiun-Molybdenum steel forgings-Hardened&Tempered) as per Spec.AA19358 rev.08 or latest standards IS: 4367-1991 for upto 150mm dia only, GR: 40Ni6Cr4Mo3 H&T/ BS 4670-1971,Gr: 818M40, H&T or euivalent grade meeting our Requirement during last 7 years (ending last day of month previous to the one in which NIT is published)	YES/NO	Purchase order and Mill Test certificate. In case of authorized dealer experience documents of there OEM is also consided.
3	Company shall be certified with ISO 9001 or equivalent. In case of authorized representative, Valid ISO certificate of manufacturer is required	YES/NO	valid certificate to be submitted.

NOTE-

1. BHEL has right to verify information / confirmation furnished, by asking additional documents, proofs etc

Dy.Mgr
WTM(Mat.plg.)

DGM
WTM(PLG.)

Annexure-1

DECLARATION (To be given by Bidder)

GeM Bid No……
Item Description: ……

With reference to above reference bid, we M/s……. (Bidder's Name) confirm/declare the following.

1. Quoted Make-…….

2. We are OEM or Reseller - …….

3. Valid OEM Authorization certificate with OEM's Contact Details attached (In case of reseller) - Yes / NA ……..…….

4. We confirm Nil deviation from GeM bid document (NIT).

Note:
1. OEM details such as name, designation, address, e-mail Id and Phone number required to be furnished along with the technical bid. (also refer ATC clause).
2. Commercial Deviation/deviation in delivery shown separately or found hidden in the offer, will not be taken cognizance of.

(Vendor's Seal & Sign)

MAKE IN INDIA format (to be filled by OeMs of the participating bidders)

BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL

MATERIAL MANAGEMENT – STEEL DIVISION

For this Procurement, Government of India Public Procurement (Preference to Make in India), Order 2017 with its amendments and subsequent Orders issued by the respective nodal ministries shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT.

*As per the Provisions of this order, please submit **a self-certification complying with the conditions below on company letterhead duly signed by competent authority**.*

I ……..., hereby declare on behalf of M/s. ……. that we are participating in the Enquiry No. …… floated by BHEL, Bhopal (MP), India and shall comply with following:

1. Public Procurement (Preference to Make in India), Order 2017 *with its amendments* and subsequent Orders issued by the respective nodal ministries shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT.

    (a) A supplier will be treated as **"Class-I Local Suppliers",** if the items quoted by bidder have local content equal to or more than 50%.

    (b) '**Local Content'** means the amount of value added in India, which shall be total value of item quoted (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, **in percent**.

2. I hereby declare that our firm qualifies as **"Class-I Local Suppliers"**.
   a. The Local Content in the items quoted under this Enquiry is ……. Percent
   b. Details of location(s) in India where this value addition shall be done, is/are as follows:

(a) ……..
(b) ……..
(c) ……..

(……)

For M/s. ……

(Seal & Sign)

703455/2024/HEP-WTM20217

BHEL	**CORPORATE PURCHASING SPECIFICATION**	AA19358 Rev No.08 PREFACE SHEET

1.5% NICKEL – CHROMIUM – MOLYBDENUM STEEL FORGINGS – HARDENED AND TEMPERED

FOR INTERNAL USE ONLY

REMOVE THIS PREFACE BEFORE ISSUE TO SUPPLIERS

Equivalent/Comparable Standards:

1. INDIAN	:	IS: 4367 – 1991- up to 150 mm only Gr.:40Ni6Cr4Mo3, Hardened and Tempered
2. BRITISH	:	BS 4670 – 1971, Gr.:818M40 Hardened and Tempered

Suggested/Probable Suppliers and Grades:

Refer plant vendors list.

User Plants and Replaced Plant Specifications/References:

1. HEEP, HARDWAR	:	0500.7031, Gr: 34X H1M
2. HPEP, HYDERABAD	:	HY 19369, TDC 003/71, TDC 200/76, BS 4670 Gr. 818M40, IS: 4367, UNI 40NiCrMo7
3. HEP, BHOPAL	:	PS10524

Revisions:			**APPROVED:**		
Cl: 33.1.0, A.3 of MRC -FCF+HTM			INTERPLANT MATERIAL RATIONALISATION COMMITTEE – MRC(FCF+HTM)		
Rev No.08	Amd No.	Reaffirmed	Prepared	Issued	Dt. of 1st Issue
Dt:30-01-2008	Dt:	Year:2014	HEP, Bhopal	Corp.R&D	February, 1979

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	CORPORATE PURCHASING SPECIFICATION	AA19358
		Rev No. 08
		PAGE 1 of 6

1.5% NICKEL – CHROMIUM – MOLYBDENUM STEEL FORGINGS – HARDENED AND TEMPERED

1.0 GENERAL:

This specification governs the quality requirements of 1.5% Nickel – Chromium – Molybdenum Steel Forgings, Hardened and Tempered.

The raw material for these forgings is covered by AA10559

2.0 APPLICATION:

Suitable for general engineering purposes.

3.0 CONDITION OF DELIVERY:

Hardened and tempered.

Rough machining of the forgings shall be carried out, unless otherwise specified in BHEL order/drawing.

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

The material shall comply with the following National standards and also meet the requirements of this specification.

IS: 4367 – 1991 : Alloy steel forgings for general industrial purpose.
Gr: 40Ni6Cr4Mo3, H&T

5.0 DIMENSIONS AND TOLERANCES:

The dimensions and tolerances shall be as specified in BHEL order/drawing. Wherever these are not specified, the machining allowances and tolerances shall be as specified below.

For finish machined drawings : 3 ± 1 mm
For rough machined drawings : ± 1 mm

6.0 MANUFACTURE:

Forgings shall be manufactured from steel produced by the open electric, arc furnace, there after refined by vacuum degassing or other process as may be agreed to between BHEL and the manufacturer.

Steel shall be fully killed.

Sufficient discard shall be made from each ingot to ensure freedom from pipe, segregation and other defects.

The amount of hot working and finishing temperature shall be such as to ensure complete soundness and adequate uniformity of structure and mechanical properties after heat treatment. The forgings shall not be over heated.

The minimum reduction ratio when forgings are made out of ingots shall be 4:1

For sizes above 250mm ruling section the minimum reduction ratio shall be 3.5:1

Note: Raw material like Ingots/Blooms/Billets required for forgings should be procured from BHEL approved sources along with test certificate.

7.0 HEAT TREATMENT:

Forgings shall be hardened and tempered to give the mechanical properties specified.

Stress relieving of the forgings shall be done so that minimum residual stresses are leftover.

8.0 FINISH:

As mentioned in the drawing.

9.0 FREEDOM FROM DEFECTS;

Forgings shall be free from defects such as cracks, flakes, seams, segregation, harmful non-metallic inclusions and other defects which may affect the utility of the forgings.

10.0 CHEMICAL COMPOSITION:

The melt analysis of steel and permissible variation in the composition of the forgings from the melt analysis shall be as specified below:

Element	Melt analysis percent		Permissible variation percent	
	Min.	Max.	Upto 250 mm	>250 upto 500 mm
Carbon	0.35	0.45	± 0.02	± 0.04
Silicon	0.10	0.35	± 0.03	± 0.04
Manganese	0.40	0.70	± 0.04	± 0.06
Nickel	1.25	1.75	± 0.05	± 0.05
Chromium	0.90	1.30	± 0.05	± 0.06
Molybdenum	0.20	0.35	± 0.03	± 0.04
Sulphur	---	0.035	+ 0.005	+ 0.010
Phosphorus	---	0.035	+ 0.005	+ 0.010

Note:

1) Wherever necessary, more restricted ranges of chemical composition may be specified subject to mutual agreement between BHEL and the manufacturer.

2) Elements not quoted above shall not be added to the steel, other than for the purpose of finishing the heat and shall not exceed the following limits:

Element	Percent, max
Copper	0.25
Vanadium	0.05
Tin	0.05

11.0 TEST SAMELES:

11.1 Unless otherwise specified in the order/drawing, test samples shall be taken from each melt and each heat treatment batch. Test samples should be cut from the heat treated forgings by cold process only and shall receive no further heat treatment.

Test samples shall be taken from locations indicated on the drawing, leaving enough material, if required, for testing at BHEL's end, integral with the forging.

Test samples shall be cylindrical or rectangular in shape and cut at a distance of 12.5 mm below the heat treated surface.

11.2 When integral test pieces are not called for, a test sample equivalent to the ruling section or 65 mm diameter, whichever is less and 610 mm long, having similar reduction ratio and heat treatment, as the forgings it represents shall be provided per heat, per heat treatment batch for check testing at BHEL along with the forgings. The sample shall be properly identified and correlated with the heat/heat treatment Batch No/Test certificate No., Test samples shall be taken at a distance of 12.5 mm below the heat treated surface**.**

11.3 Test samples shall generally be taken in the longitudinal direction. However, for economic reasons or where the size/configuration does not permit the same. Test samples may be taken in the transverse or radial direction. The test sample orientation shall be mentioned in the test certificate.

12.0 MECHANICAL PROPERTIES:

The test pieces, after being heat treated as per clause 7.0 above, shall show the following properties upto a limiting section of 800mm. Properties for thicker sections shall be subject to agreement between BHEL and the manufacturer. Test methods are specified below:

12.1 Tensile test:

IS: 1608

12.2 Hardness test (Brinell):

IS: 1500

12.3 Charpy Impact Value:

IS: 1499

This test applicable for forgings of sizes above 16mm only.

Property	Sample (See Cl: 11.3)	Limiting ruiing section, mm					
		Up to 30	>30 to 63	>63 to 100	>100 to 150	>150 to 250	>250 to 500
Tensile strength N/mm²	Longitudinal/ Transverse/ Radial/Tangential	1200 to 1350	1100 to 1250	1000 to 1150	900 to 1050	900 to 1050	900 to 1050
Yield strength min, N/mm²	Longitudinal/ Transverse/ Radial/Tangential	1000	880	800	700	690	690
Elongation on $5.65\sqrt{S_0}$ gauge length percent, min	Longitudinal Transverse Radial Tangential	10 5 6 7	11 6 7 8	13 7 9 10	13 7 9 10	13 7 9 10	13 7 9 10
*Hardness Brinell,HB	----	355 to 399	325 to 370	295 to 341	266 to 311	262 to 311	262 to 311
Impact Value (ISO – U on 3 samples) min., Joules	Longitudinal Transverse Radial Tangential	20 10 12 15	28 14 17 21	32 16 19 24	37 19 22 28	34 17 20 26	28 14 17 21

* **Note:** Hardness test can be conducted only, when tensile test cannot be performed.

13.0 ULTRASONIC TEST:

Each forging shall be tested ultrasonically in accordance with BHEL standard AA0850118 to ensure freedom from internal defects. The norms of acceptance shall be as per Category 2 of the above standard.

14.0 ADDITIONAL TESTS:

If specified in the drawing/order, the following tests shall be conducted:

i) Magnetic particle test.
ii) Any other tests.

Norms and acceptance shall be as specified in the drawing/order.

15.0 TEST CERTIFICATES:

Three copies of test certificates shall be supplied unless otherwise stated in the order, preferably in the test certificate format annexed to this specification (Annexure-1).

In addition, the supplier shall ensure to enclose one copy of the test certificate along with their dispatch documents to facilitate quick clearance of the material.

The test certificate shall bear the following Information.

Dimensional Inspection.
Details of heat treatment.
Reduction ratio.
Chemical composition including trace elements.
Results of mechanical tests.
Results of ultrasonic test.
Results of additional tests called for in the order/drawing.

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:

AA19358:1.5% Nickel – Chromium – Molybdenum Steel Forgings –Hardened and Tempered
BHEL Order No.:
Consignment/Identification No.:
Weight:
Melt. No.:
Batch No.
Supplier/s name

17.0 REFERRED STANDARDS (Latest publications including amendments):

1. AA0850118 2. IS: 1500 3. IS: 1608 4. IS: 1757 5. IS: 4367

CORPORATE PURCHASING SPECIFICATION

ANNEXURE - 1

RECOMMENDED TEST CERTIFICATE FORMAT FOR FORGINGS

SUPPLIER'S NAME AND ADDRESS

TEST CERTIFICATE FOR FORGINGS

1. Customer:
2. TC No. & Date:
3. PO No.:
4. Process of Melting Ingot:
5. Deoxidisation Process:
6. Forging Method:
7. BHEL's Reference for Approval of Bloom
8. Discard: Top_____%; Bottom_____%
9. Reduction Ratio } Ingot to Bloom / Bloom to Blank
10. Batch No.:
11. Heat/Melt No.
12. Spec.No.
13. Test Bar Size & Nos.
14. Supplier of the ingot/billet/ Bloom and TC reference.

15. FORGINGS COVERED BY TEST CERTIFICATE

S.No.	Drawing No. & Item No.	Description	Quantity & Weight

16. CHEMICAL COMPOSITION (PERCENT)

Element		C	Si	Mn	S	P											
As Per Specn.	Min.																
	Max.																
Actual Values																	

17. HEAT TREATMENT
(To be accompanied by Recorder Chart, Whenever called for)

Condition	Heating Rate, °C/hr.	Temp. °C	Soaking Time, Hrs.	Cooling Rate, °C/hr	Cooling Medium

18. MECHANICAL PROPERTIES

		T.S. N/mm²	Y.S. 0.5/0.2% Proof N/mm²	% Elongation $5.65\sqrt{So}$ GL	% R.A. Min.	Hardness BHN (Min. 3 values)	Impact Value Joules	Bend Test		
								Angle of bend	Dia of mandrel	Result
As Per Specn.	Min.									
	Max.									
Actual Values										

19. SURFACE FINISH (When called for in the order/drg.)

20. DIMENSIONAL INSPECTION

21. NON-DESTRUCTIVE TESTS

Nature of Test	Acceptance level	Instrument used	Range	Results	Any other detail
Ultrasonic					
Radiographic					
Dye penetrant/ Magnetic Particle					

22. METALLOGRAPHIC EXAMINATION
(To be conducted if called for and photo micrographs to be attached along with a report)

Location of Sample	Etchant used	Magnification	Constituent observed	Relative %	
Microstructure	Macroetch	Inclusion Rating			

23. OTHER TESTS IF ANY (MICROSCOPIC, SULPHUR PRINTS, ETC)

24. IDENTIFICATION OF FORGINGS AS PER PURCHASE SPEC.

We hereby certify that the items mentioned above have been tested and inspected in our presence and are found to be in accordance with drawings, specifications and purchase order.

SIGNATURE, NAME & SEAL OF THE INSPECTING OFFICER
DATE:

SIGNATURE, NAME & SEAL OF THE CHIEF OF QUALITY CONTROL/ CHIEF METALLURGIST OF THE SUPPLIER
DATE:

INSTRUCTIONS

a) Details of all heat treatment processes carried out should be furnished sequentially in 17.
b) Test certificates are to be furnished as per Purchase order and specification, in A4 size preferably in transparent paper.
c) All the entries including signature should be in block colour ink.
d) If testing is done by outside agencies, the original TCs shall be furnished.
e) The actual TC may run into more than one A4 size paper, if needed, to facilitate filling up of details.

703455/2024/HEP-WTM20217

BHEL	**PRODUCT STANDARD** **WATER TURBINE MANUFACTURING**	**WTM 0001** **Rev. 00**
		Page 1 of 2

GENERAL REQUIREMENTS OF 1.5 % NICKEL – CHROMIUM – MOLYBDENUM STEEL BARS HARDENED AND TEMPERED AS PER AA 19358 Rev. 08

1.0 MATERIAL SPECIFICATION :

These requirements are in addition to those included in BHEL corporate purchase specification AA 19358 rev. 08 and are applicable for dia. ranging from 110 to 200 mm (both dia. inclusive)

2.0 CONDITION OF DELIVERY :

It is allowed to supply Hot rolled / Forged ; Hardened and tempered.

3.0 FOR HOT ROLLED BAR :

3.1 Bars to be supplied as Hot rolled, hardened & tempered condition. Rough machining is not required.

3.2 Rolled bars to be supplied in lengths of 3 – 6 meter.

3.3 Out of straightness allowed is 3 mm / meter.

3.4 Tolerance on diameter to be + 2.5 % & - 0.0 % of diameter required.

3.5 Each Rolled bar shall be tested ultrasonically in accordance with BHEL standard AA0850118 rev. 01 to ensure freedom from internal defects. The norms of acceptance shall be as per category 2 of the above standard.

3.6 All the mechanical properties, chemical composition and any other requirement not mentioned above shall be as per BHEL corporate specification AA 19358 rev. 08

3.7 Quantity variation ± 10 % acceptable.

4.0 FOR FORGED BAR :

4.1 Bars to be supplied as Forged, hardened & tempered condition. Rough machining is to be done.

4.2 Forged bars to be supplied in lengths of 3 – 6 meter.

Rev. No.	Date of Rev.	Remarks			
00	12.05.18	-		B.C. Choudhari AGM (HOD) - WTM	16/05/18
			Prepared Mahendra Soni Dy. Manager - WTM	**Checked** Jitendra Singh Manager - WTM	**Date of issue (Rev 00)** 12.05.18

BHEL	**PRODUCT STANDARD** **WATER TURBINE MANUFACTURING**	**WTM 0001** **Rev. 00**
		Page 2 of 2

GENERAL REQUIREMENTS OF
1.5 % NICKEL – CHROMIUM – MOLYBDENUM STEEL BARS
HARDENED AND TEMPERED AS PER AA 19358 Rev. 08

4.3 Out of straightness allowed is 3 mm / meter.

4.4 Tolerance on diameter to be + 2.5 % & - 0.0 % of diameter required.

4.5 Each Forged bar shall be tested ultrasonically in accordance with BHEL standard AA0850118 rev. 01 to ensure freedom from internal defects. The norms of acceptance shall be as per category 2 of the above standard.

4.6 All the mechanical properties, chemical composition and any other requirement not mentioned above shall be as per BHEL corporate specification AA 19358 rev. 08

4.7 Quantity variation ± 10 % acceptable.

Note :

The requirement given in the document overrules the requirement given in BHEL specification AA19358 rev. 08

Rev. No.	Date of Rev.	Remarks			
00	12.05.18	-		R. Choudhari AGM (HOD) - WTM	
			Prepared	**Checked**	**Date of issue (Rev 00)**
			Mahendra Soni Dy. Manager - WTM	Jitendra Singh Manager - WTM	12.05.18

BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL
QA-HYDRO
STANDARD QUALITY ASSURANCE PLAN FOR BAR MATERIAL

QAP NO. : QA/HT/1042 Rev. 00 Dated :- 16.05.2018
SPECIFICATION : AA 19358 Rev. 08 (1.5 % Nickel - Chromium - Molybdenum Steel Bars)
SUPPLY CONDITION : 110 - 200 mm - (Hot Rolled ; Hardened & Tempered, unmachined) OR (Forged ; Hardened & Tempered, machined)

1	2	3		4	5	6	7	8	9	10	11	12
SL. NO.	STAGE	CHARACTERSTIC		METHOD	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	P	V	W	REMARKS
1	Raw Material	Chemical		Chemical test	1 Sample / Heat	AA 19358 Rev. 08	AA 19358 Rev. 08	Mill Test Certificate	1	2	-	-
2	Heat Treatment	Hardened & Tempered		Hardened & Tempered	1 Sample / Heat & H.T. Batch	-do-	-do-	H.T. Chart	1	2	-	-
3	Final Stage	Stamping on test bar for mechanical Testing		Hard Stamp by TPIA	-do-	-do-	-do-	Stage Inspection Report	1	-	2	Test Piece duly stamped by TPIA
		Mechanical Properties	i) Tensile Test	As Specified in AA 19358 Rev. 08	-do-	-do-	-do-	Supplier's Test Certificate	1	-	2	-
			ii) Charpy Impact Test (on 3 samples)	-do-	-do-	-do-	-do-	Supplier's Test Certificate	1	-	2	
			iii) Yield strength	-do-	-do-	-do-	-do-	Supplier's Test Certificate	1	-	2	
			iv) % Elongation	-do-	-do-	-do-	-do-	Supplier's Test Certificate	1	-	2	
		Ultra Sonic Test		As Specified in AA 19358 Rev. 08	100%	AA0850118 Rev. 01	Category II	U.T. report	1	-	2	1) 100% UT to be done by vendor. 2) 15% UT to be witness by TPIA on sample basis
		Chemical Composition		Chemical test	1 sample / Heat	AA 19358 Rev. 08	AA 19358 Rev. 08	Supplier,s Test Certificate	1	-	2	-
		Visual Examination		Visual	100%	-do-	Bars shall be free fom surface defects, bends & twists	Supplier,s Dimensional Report	1	-	2	
		Dimension & Tolerance		Measurement	100%	WTM 0001 Rev. 00	WTM 0001 Rev. 00	-do-	1	-	2	-
4	Dispatch	Identification Marking		Hard Stamping	100%	AA 19358 Rev. 08	AA 19358 Rev. 08	1. Heat No. 2. P.O. No. 3. Spec No. 4. Size 5. Supplier's Name	1	-	2	Identification & marking shall be done on face of each bar & TPIA hard stamp to be done on both face of each bar.
5	Document submission duly certified by TPIA	1) Mill test certificate (Mechanical & Chemical) 2) Supplier Test certificate (Mechanical & Chemical) 3) Dimensional Inspection report. 4) Heat Treatment chart 5) U.T. Report										

Note : Final Testing of Material will be done at BHEL Bhopal works before clearance of SRV.

1 = Manufacturer / Trader
2 = BHEL / BHEL's TPIA

P = Perform
V = Verification
W = Witness

AADHAR SHARMA / Sr. Engineer (QWT) / Quality Control-WTM / BHEL, BHOPAL

H.T.E

Shivendra Kumar / Sr. Manager / H.T.E. DIVISION / B.H.E.L., Bhopal

WTM

MAHENDRA SONI / Dy. Manager (Production) WTM Division / BHEL, BHOPAL