



# उत्तर प्रदेश मेट्रो रेल कॉर्पोरेशन लि०

## UTTAR PRADESH METRO RAIL CORPORATION LTD.

(Formerly Known as Lucknow Metro Rail Corporation Ltd.)

(भारत सरकार एवं उत्तर प्रदेश सरकार का एक संयुक्त उपक्रम)

(A JOINT VENTURE OF GOVT. OF INDIA & GOVT. OF U.P.)

UPMRC/CE-CONTRACT/KNPAGT-1/2020-21

Date: 18.12.2020

To,

All Bidders

**Subject: - Issuance of Addendum-02 for tender KNPAGT-1.**

**Ref: - Tender KNPAGT - 1:** Supply of 17,700 MT Head Hardened Rails (60 E1, IRS-T-12-2009, 1080 grade HH) for Kanpur and Agra Metro.

2). Reply to Pre-bid queries and Addendum-1 dated 09.12.2020 uploaded on UPMRC's website.

Dear Sir,

Please find enclosed herewith the Addendum-02 to the tender KNPAGT-1. Further, bid submission and opening dates are remained same as in Addendum-1:

- Date & Time of submission of tender : **11.01.2021 upto 15:00 Hrs**
- Date & Time of opening of tender : **11.01.2021 @ 15:30 Hrs**

(Deepak Gupta)  
CE/Contract



(AN ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 Certified Company)

Administrative Building, Near Dr. Bhimrao Ambedkar Samajik Parivartan Sthal, Vipin Khand, Gomti Nagar, Lucknow 226010

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## Addendum 2 for KNPAAGT-1

Sl. No.	Tender Part	Section	Page No.	Replaced by	Remarks / Changes	Annexure
1	Part 1	NIT	2	2R	Related to Eligibility Criteria	Annexure 1
2	Part 1	NIT	3R	3R1	Related to Technical Specification	Annexure 2
3	Part 2	Section IV	58	58R	Related to Technical Specification	Annexure 3
4	Part 2	Section IV	-	-	Addendum and Corrigendum Slip No. 5 (ACS no. 5 dated 15.09.2020) to IRS-T-12: 2009	Annexure 4
5	Part 2	Section IV	-	-	Corrigendum no. 1 to ACS no. 1 of IRS-T-12/2009 dated 27.11.2020.	Annexure 5
6	Part 1	Section II	32R	32R1	Related to Project Import Registration	Annexure 6
7	Part-3	Section-VIII	179R	179R1	Related to Payment in INR	Annexure 7



Projects in various important cities in the State of Uttar Pradesh and has been entrusted with the responsibility of implementation and operation of the rail based Mass Rapid Transit System (Metro) in Kanpur and Agra cities where Metro Projects have been recently approved by Government of India.

#### 1.1.4 QUALIFICATION CRITERIA:

##### A. Eligibility Criteria:

##### (I) Minimum Eligibility Criteria

The bidder shall furnish documentary evidence to demonstrate that it meets the following experience requirement(s):

- (i) Supply of minimum quantity of 1,00,000 MT of Rails during last 07 years, out of which Min 50,000 MT Rails should have been supplied outside the country of production from the proposed Rail manufacturing facility.
- (ii) Out of the Rails supplied to other countries, minimum 25,000 MT supply should be Head Hardened (HH) in last seven years as per international standard or similar to be procured in this tender. Further out of 25,000 MT of HH Rails, minimum 12,500 MT of rails supply should be of 60E1 or similar rail profile.
- (iii) Documentary evidence of Head Hardened (HH) Rails manufacturing facility certified by internationally accredited agency is to be submitted with the bid.

##### (II) Experience and Technical Capacity

The Bidder shall furnish documentary evidence to demonstrate that it meets the following experience requirement(s):

- (i) Bidder shall furnish year wise and consignee wise details of supply during last seven years ending 31.01.2020.
- (ii) The bidder shall furnish the details of supplies made for the goods being procured in this contract i.e. 60 E1, IRS-T-12-2009, 1080 grade HH rails **or similar to be procured in this tender.** Details should include a performance certificate which should include purchase order details, name of purchaser, the railway projects/ MRTS Project, where used / being used, the design speed and axle load of the section, quantity of rails supplied, period of supply and the date of commencing operations on Metro/ Railway system. These rails should have satisfactory performance in at least one Metro/Railway system for 3 years period under train operations. The details of address, contract person, fax / e mail is also to be furnished. In absence of the above statement / details, offer will be summarily rejected. In case design speed, axle load is not included in the client certificate, the bidder shall submit undertaking specifying design speed and axle load.
- (iii) The bidder shall also furnish the
  - Details of Current work commitments;
  - Plant and manufacturing capacity
  - Organisation set up
  - Statement & details of equipment and other facilities available.
  - Evidence of access to lines of credit and availability of other financial resources;

- Quality control system and detailed quality assurance plan.
- (iv) The rails proposed to be supplied in this bid are as per IRS-T-12-2009 Specifications (up to ACS No. 4 dated 04.03.2019/ **latest Correction Slips issued up to the date of tender submission**). The bidder shall furnish clause by clause confirmation of IRS-T-12-2009 Specifications for the rails proposed to be supplied in this contract.
- (v) The bidder should submit Technical Proposal as per Annexure "A" of Technical specification, in the absence of the same offer will be summarily rejected.
- (III) **For eligibility criteria of Developmental Order and additional clarification on Regular Order, refer Annexure "D" of Section III, Evaluation and Qualification Criteria.**

#### 1.1.4 B. Eligible Applicants:

- (i) The tenders for this contract will be considered only from those tenderers (proprietorship firms, partnerships firms, companies, corporations, consortia or joint ventures) who meet requisite eligibility criteria prescribed in the sub clauses of Clause 1.1.4 (A) of NIT. In the case of a JV or Consortium, all members of the Company / Firm shall be jointly and severally liable for the performance of whole contract. The JV or Consortium shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the partners of the JV or Consortium during the tendering process and, in the event the JV or Consortium is awarded the Contract, during contract execution.
- (ii) (a) A Tenderer and in case of JV or Consortium, all partners constituting the Tenderer may be from any country and all areas.  
(b) A tenderer shall submit only one bid in the same tendering process, either individually as a tenderer or as a partner of a JV. A tenderer who submits or participates in, more than one bid will cause all of the proposals in which the tenderer has participated to be disqualified. No tenderer can be a subcontractor while submitting a bid individually or as a partner of a JV in the same bidding process. A tenderer, if acting in the capacity of subcontractor in any bid, may participate in more than one bid, but only in that capacity.
- (iii) Tenderers shall not have a conflict of interest. All Tenderers found to have a conflict of interest shall be disqualified. Tenderers shall be considered to have a conflict of interest with one or more parties in this bidding process, if:
  - a) a tenderer has been engaged by the Employer to provide consulting services for the preparation related to procurement for on implementation of the project;
  - b) a tenderer is any associates/affiliates (inclusive of parent firms) mentioned in subparagraph (a) above; or
  - c) a tenderer lends, or temporarily seconds its personnel to firms or organisations which are engaged in consulting services for the preparation related to procurement for on implementation of the project, if the personnel would be involved in any capacity on the same project.
- (iv) A firm, who has purchased the tender document in their name, can submit the tender either as individual firm or in joint venture/Consortium.

**KNPAGT - 1:** Supply of 17,700 MT Head Hardened Rails (60 E1, IRS-T-12-2009, 1080 grade HH) for Kanpur and Agra Metro.

### 3.0 Technical Specifications

"Summary of Technical Specifications. The Goods and Related Services shall comply with following Technical Specifications and Standards:

Item No	Name of Goods or	Technical Specifications and Standards
[insert item]	[insert name]	[insert TS and Standards]
1.	60 E1 Head Hardened Rails, Grade 1080( <u>Class "A"</u> )	Indian Railway Specifications for flat bottom Railway Rails No. T-12-2009 (up to ACS No. 4 dated 04.03.2019/ <b><u>latest Correction Slips issued up to the date of tender submission</u></b> ) and Annexure -'A'

Detailed Technical Specifications and Standards [enclosed].

Indian Railway Standard Specifications for flat – Bottom Railway Rails No. T-12-2009 (49 Pages) along with correction slips up to No.4 and Railway Board's letter dated 04.03.2019.





भारत सरकार - रेल मंत्रालय  
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लखनऊ - 226 011  
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Government of India-Ministry of Railways  
Research Designs & Standards Organisation  
Lucknow - 226 011  
DID (0522) 2450115  
DID (0522) 2465310



No. CT/Specification/T-12

Dated 15.09.2020

As per list enclosed

Sub: Addendum and Corrigendum Slip to Specification for Flat Bottom  
Rails – IRS T-12:2009.

Ref: (i) Railway Board's letter no. 2019/Track-I(P)/1175Ht Rails/Vol.I  
dated 04.09.2020

(ii) This office letter of even no. dated 17.07.2020

\*\*\*\*\*

1. Please find enclosed herewith Addendum and Corrigendum Slip No. 5 (ACS no. 5) to IRS-T-12:2009.
2. ACS no. 5 to IRS-T-12:2009 will be implemented with immediate effect except Clauses no. 9.1.1(only for profile 60E1A1 as per Appendix IIA (Revised)) and 9.4.1 for which 3 months time would be given to the manufacturer for switch over of the technology.

DA: 25 Pages

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(Nilmani)  
Executive Director/Track-I  
For Director General/Track



**ACS no. 5 to IRS-T-12:2009**

Sr. no.	Superseded and Additional Para and Clause
1.	<p>This specification was initially adopted in 1934 and subsequently revised in 1939, 1950, 1953, 1955, 1958, 1960, 1964, 1988 and 1996. The present version has been adopted in 2009 specifying the requirements of the Prime rail and IU rails.</p>
2.	<p><b>2. RAIL SECTION</b> The Section of the flat bottom rails shall be in accordance with the section profiles shown in Appendix-I, II(Revised), IIA(Revised), III, unless otherwise specified by the purchaser.</p>
3.	<p><b>4.2 Cast/Heat</b> Liquid steel melt tapped out of a converter or electric arc furnace which includes after continuous casting a given number of blooms relating to the weight of the heat and the extension of the mixing zone.</p> <p><b>4.4 Classification of rails</b> 52 kg/m, 60E1, 68 kg/m &amp; 60E1A1 rails shall be classified as class 'A' and class 'B' based on tolerance in end straightness as specified in Clause 9.4.2.</p> <p><b>4.5 Heat treated rail</b> Rail that has undergone accelerated cooling from austenitizing temperature during the metallurgical transformation period.</p> <p><b>4.6 Re-heated rail</b> Rolled rail that has undergone re-austenitization for heat treatment purposes.</p> <p><b>4.7 Mill heat treated rail</b> Heat treated rail that has not undergone re-austenitization after rolling.</p> <p><b>4.8 Rail Running Surface</b> Curved surface of the rail head. Area between both gauge corners (transition points of the head inclination and the first head radius)</p>
4.	<p><b>5.4 Heat Treatment Process</b> The rails shall be suitably heat treated to meet the requirements of the specification.</p>
5.	<p><b>6. INFORMATION TO BE SUPPLIED BY THE PURCHASER</b> The purchaser shall provide the following information to the supplier when inviting tender for supply of rails according to this specification:</p> <ul style="list-style-type: none"> <li>i) Rail steel grade (Table 1)</li> <li>ii) Rail Section profile {Appendix I, II(Revised), IIA(Revised) and III}</li> <li>iii) Class of rail</li> <li>iv) Length of rail.</li> <li>v) Undrilled or drilled rails ends.</li> <li>vi) Colour code requirements(Appendix-IV)</li> </ul>
6.	<p><b>7.0</b> The steel for the rails shall be of fully killed quality and shall conform to chemical composition and mechanical properties given in Table-1. The limits for chemical composition are applicable both for tests on ladle samples and for check analysis of finished rails. Ladle and check analysis of steel, will be carried out by the method specified in the relevant part of IS:228 or by any other established instrumental/chemical method of testing with the approval of the purchaser. In case of any dispute, the procedure given in the relevant part of IS:228 shall be referred.</p>



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**TABLE-1**

Grade	Chemical Composition (percentage)												Mechanical Properties				
	C	Mn	Si	S (max)	P (max)	Al (max)	Mo (max)	Cr	V (max)	Cu	Ni	10 <sup>-4</sup> % (ppm) max by mass O	Hydrogen content in liquid steel (max)	UTS (MPa) (Min)	*** Yield Strength (MPa)(Min.)	Elongation % on gauge length - 5.65So (min)	Running surface hardness (BHN)
880	0.60-0.80	0.80-1.30	0.10-0.50	0.030*	0.030*	0.015	-	0.30 (max)	0.01	-	-	-	1.6 ppm	880	460	10.0	Min 260
1080 HH	0.60-0.80	0.80-1.30	0.10-0.50	0.030*	0.030*	0.015	-	0.30 (max)	0.01	-	-	-	1.6 ppm	1080	460	10.0	340-390
Nickel Chromium Copper (NC)	0.60-0.80	0.80-1.30	0.10-0.50	0.030*	0.030*	0.015	0.25	0.50-0.65	-	0.3-0.4	0.25-0.40	-	1.6 ppm	880	550	10.0	Min 260

So = Cross sectional area of tensile test piece in mm<sup>2</sup>

\*0.035 maximum for finished rail

The chemical compositions specified as above are applicable to Ladle analysis and Product Analysis. Manufacturer shall ensure that chemical composition at ladle analysis should be such that product analysis also satisfies the requirement of chemical composition as above.

\*\* Desirable Value.

\*\*\*Frequency to be mutually agreed by purchaser and manufacturer.

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TABLE-1contd.....

Grade	Chemical Composition (percentage)											Mechanical Properties			
	C	Mn	Si	S (max)	P (max)	Al (max)	Cr	V (max)	N (max)	# # # 10 <sup>-4</sup> (ppm) max by mass O	Hydrogen content in liquid steel (max)	# UTS (MPa) (Min)	# * Yield Strength (MPa)(Min.)	# Elongation % on gauge length - 5.65√So (min)	Running surface hardness (BHN)
R260	0.62-0.80	0.70-1.20	0.15-0.58	0.025	0.025	0.004	≤0.15	0.030	0.009	20	1.6 ppm	.	.	.	.
	0.60-0.82	0.65-1.25	0.13-0.60	0.030	0.025	0.004	≤0.15	0.030	0.010	20	1.6 ppm	880##	550##	10 ##	260-300

So = Cross sectional area of tensile test piece in mm<sup>2</sup>

The chemical compositions specified as above are applicable to Ladle analysis and Product Analysis. Manufacturer shall ensure that chemical composition at ladle analysis should be such that product analysis also satisfies the requirement of chemical composition as above.

\* After results of 1000 heats on rails supplied by manufacturer, frequency would be reviewed as mutually agreed by purchaser and manufacturer.

# The samples for R260 grade shall be taken from head as well as foot of the rail and location of sample as per fig 4 and 4 (a) of Para 17 respectively.

## The limits of UTS, YS and Elongation would be applicable to sample taken from rail head. No limit has been specified for UTS, YS and Elongation of sample taken from rail foot, as these data would be for records purpose.

### Testing frequency of total oxygen content shall be as per Clause 18.5 i.e. 'one test per sequence'.

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**TABLE-1contd.....**

Chemical Composition (percentage)												Mechanical Properties			
Grade	C	Mn	Si	S (max)	P (max)	Al (max)	Cr (max)	V (max)	N (max)	***10 <sup>-4</sup> % (ppm) max by mass O	Hydrogen content in liquid steel (max)	*UTS (MPa) (Min)	*Yield Strength (MPa)(Min.)	*Elongation % on gauge length - 5.65√So (min)	Running surface hardness (BHN)
Liquid	0.72-0.80	0.70-1.20	0.15-0.58	0.025	0.020	0.004	0.15	0.030	0.009	20	1.6 ppm	-	-	-	-
	Solid	0.70-0.82	0.65-1.25	0.13-0.60	0.030	0.025	0.15	0.030	0.010	20	1.6 ppm	1175 (Head) **	560 (Head) 560 (foot)	9 (Head) **	350-390

So = Cross sectional area of tensile test piece in mm<sup>2</sup>  
 The chemical compositions specified as above are applicable to Ladle analysis and Product Analysis. Manufacturer shall ensure that chemical composition at ladle analysis should be such that product analysis also satisfies the requirement of chemical composition as above.  
 \* Testing frequency one test per 1000T. The samples for 1175 HT grade shall be taken from head as well as foot of the rail and location of sample, is shown in figure under clause 17.3  
 \*\*The minimum value of UTS and Elongation would be applicable to sample taken from rail head. No limit has been specified for UTS and Elongation of sample taken from rail foot as these data would be for records purpose.  
 \*\*\*Testing frequency of total oxygen content shall be as per Clause 18.5 i.e. 'one test per sequence'.

**TABLE-1contd.....**

Grade	Maximum residual elements, % by mass									
	Mo	Ni	Cu	Sn	Sb	Ti	Nb	Cu+10Sn	Others(Cr + Mo + Ni + Cu + V)	
1175HT	0.02	0.10	0.15	0.030	0.020	0.025	0.04	0.35	0.25	
R260	0.02	0.10	0.15	0.030	0.020	0.025	0.04	0.35	0.25	



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**Appendix-IV**

**COLOUR CODE FOR RAILS**

S. No.	Grade	Colour Code	13m, 18m, 26m, 130m, 260m	12m, 17m, 25m, 129m, 259m	11m, 16m, 24m	10m, 23m
1	GR. 880	Only common length wise colour code and no paint on web surface				
2	GR.1080 H.H.	In addition to common length wise colour code, <b>Blue</b> paint on both sides of web surface for a distance of 500 mm from each end.				
3	Nickel Chromiu m Copper 880NC	In addition to common length wise colour code, <b>Brown</b> paint on both sides of web surface for a distance of 500 mm from each end.				
4	GR. R260	In addition to common length wise colour code, <b>Yellow</b> paint on both sides of web surface for a distance of 500 mm from each end.				
5	1175HT	In addition to common length wise colour code, <b>Green</b> paint on both sides of web surface for a distance of 500 mm from each end.				
6	CLASS'A' RAIL	In addition to common length wise colour code, grade code as 1, 2 & 3 and <b>Green</b> paint on gauge/non gauge face for a distance of 500 mm from each end.				
7	IU	In addition to common length wise colour code, <b>Blue</b> paint on end face of flange and both sides of flange for a distance of 500mm from each end.				

**Common lengthwise colour code**

1. No paint on gauge/non-gauge face indicates class 'B' rails.
2. Yellow paint on each end face on web region indicates 13m, 18m, 26m, 130m, and 260m length.
3. Blue paint on each end face on web region indicates 12m, 17m, 25m, 129m, and 259m length.
4. White paint on each end face on web region indicates 11m, 16m, 24m length.
5. Green paint on each end face on web region indicates 10m, 23m length.

Note: - This colour code is for new rails, for second hand rails Para 722 of redrafted IRPWM-June/2020 may be referred to.

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**9. 8.1 Brand Marks**  
 With the prior approval of purchasers, brand marks of suitable size clearly legible, shall be rolled in relief on one side of web at least at every 4.0 meter interval. The brand mark shall include:

- a) The rail section.
- b) The grade of steel, i.e.
 

Grade 880	880
Grade 1080 HH	1080HH
Grade 880 Ni Cr Cu	880NC
Grade R260	R260
Grade 1175HT	1175HT
- c) Identification mark of the manufacturer
- d) Month (using roman numbers) and last two digits of year of manufacture.
- e) Process of Steel making
  - i) Basic Oxygen – O
  - ii) Electric – E

**10. 9.1 Permissible Variations in Dimensions**  
 The tolerances in sectional dimensions shown here under shall be allowed, provided,  
 For Prime quality rail the actual weight computed by weighing short pieces of rails, not less than 300mm each in length, shall fall within 0.5percent below and 1.5percent above the calculated weight shown in Appendix I, II(Revised), IIA(Revised) and III for each rail section.  
 For IU Rail the actual weight computed by weighing short pieces of rails not less than 300 mm each in length is not less than the calculated weight shown in Appendix I, II(Revised), IIA(Revised) and III of this specification for each section of rail by more than 1.5%.  
 The weight test shall be conducted for each rail section, grade and class at least once per 5000 MT quantity.

**11. 9.1.1 Tolerances in sectional dimensions (For Prime Quality rails)**

**For profile as per Appendix I, III**

Dimension	Tolerance	Remarks
Overall Height of Rails	+0.8 mm	
	-0.4 mm	
Width of Head	± 0.5mm	This will be measured 14mm below the rails top.
Width of flange	+ 1.0mm	For section less than 60Kg/m
	+1.2 mm	For sections 60kg and above
	-1.0 mm	
Thickness of web	+1.0 mm	This will be measured at the point of minimum thickness
	-0.5 mm	
Verticality/Asymmetry	± 1.2mm	Measured by gauge shown in App.

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ADET/RF



	V)
Flange	The base of the rail shall be true and flat, but a slight concavity not exceeding 0.40mm shall be permissible.
Fishing surface	The standard template for rail fishing surface shall not stand away from the contour of web by more than 1.20mm and the clearance at the fishing surfaces shall not exceed 0.2mm at any point.

**For profile as per Appendix II(Revised) (Prime Quality rails)**

Sr. No.	*Reference Points (see figure A1)		Profile (tolerance in mm)	Gauge/ figure number (see Annex A)
	Location /property	Symbol		
1	Height of Rail <sup>a</sup>	*H	±0.6	A3
2	Crown Profile	*C	+0.6 -0.3	A4
	-Class A straightness -Class B straightness		±0.6	
3	Width of railhead	*WH	±0.5	A5
4	Rail Assymetry	*As	±1.2	A6,A7
5	Height of fishing	*HF	±0.6	A8
6	Web thickness	*WT	+1.0 -0.5	A9
7	Width of Rail foot	*WF	±1.0	A10
8	Foot toe thickness	*TF	+0.75 -0.5	A11
9	Foot base concavity	-	0.3 max.	-

<sup>a</sup>The total height variation over any rail length shall not be greater than 1.2 mm for rails ≥ 165 mm.

Measurement will be done as per inspection gauges at Annexure-A

**For profile as per Appendix IIA(Revised) (Prime Quality rails)**

Sr. No.	*Reference Points (see Figure A1)		Profile (tolerance in mm)	Gauge/ figure number (see Annex B)
	Location /property	Symbol		
1	Height of Rail	<165mm *H	±0.7	A3

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2	Crown Profile	*C	+0.6	A4
3	Width of railhead	*WH	+0.5	A5
4	Height of fishing <165mm	*HF	+0.5	A8 <sup>c</sup>
5	Web thickness	*WT	+0.7	A9
6	Width of Rail foot	*WF	+1.0	A10
7	Foot base concavity	-	0.3 max.	-

<sup>c</sup> Not applicable for full web rails; in the case of all other rails, pairs of gauges with agreed dimensions shall be used to consider the different dimensions on both rail sides.  
Measurement will be done as per inspection gauges at Annexure-B.

**12. 9.1.2 Tolerances in sectional dimensions (for IU rails)  
For profile as per Appendix I, III**

Dimension	Tolerance	Remarks
Overall Height of Rails	+2.0 mm -1.0 mm	
Width of Head	+2.0mm -2.0mm	This will be measured 14mm below the rails top
Thickness of web	+2.0 mm -1.0 mm	This will be measured at the point of minimum thickness
Width of flange	+1.5 mm -2.0mm	
Flange	The base of the rail shall be true and flat, but a slight concavity not exceeding 0.40mm shall be permissible.	
Fishing surface	The standard template for rail fishing surface shall not stand away from the contour of web by more than 1.20mm and the clearance at the fishing surfaces shall not exceed 0.2mm at any point.	

**For profile as per Appendix II(Revised) (IU rails)**

SN	*Reference Points(see figure A1)		Profile (tolerance in mm)	Gauge/ figure number (see Annex A)
	Location/ property	Symbol		
1	Height of Rail <sup>a</sup>	*H	+0.6 -1.1	A3
2	Crown Profile	*C	+0.6	A4
3	Width of railhead	*WH	+0.6 -0.5	A5
4	Rail Asymmetry	*As	+1.2	A6,A7

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5	Height of fishing	*HF	+0.6	A8
6	Web thickness	*WT	+1.0 -0.5	A9
7	Width of Rail foot	*WF	+1.5 -1.0	A10
8	Foot toe thickness	*TF	+0.75 -0.5	A11
9	Foot base concavity	-	0.3 max.	-
<sup>a</sup> The total height variation over any rail length shall not be greater than 1.2 mm for rails $\geq 165$ mm. Measurement will be done as per inspection gauges at Annexure-A				

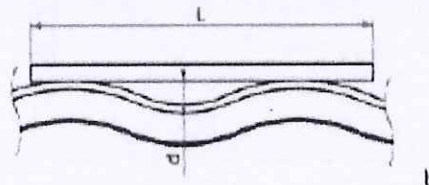
**13. 9.2 Length of Rails**

The standard length of rail shall be 13 meters or 18metres or 25meters or 26meters. The manufacturer shall be entitled to supply in pairs of short lengths up to 10% by weight of the quantity contracted for or ordered. Shorter lengths shall not be less than 10.0m in length for 13.0M and shall not be less than 16M in lengths for 18 M and shall not be less than 23 M in lengths for 25 M and 24 M in lengths of rail for 26M. Short lengths shall be in multiples of 1.0M. In case of 60E1A1 Rails, length shall be suitable for turn out design offered/proposed.

Type of Rail	Tolerance in length	
Prime Quality Rail	+20mm	-10mm
IU Grade	+30mm	-30mm

**14. 9.4.1 Flatness testing of the body shall be performed automatically.**

Location/ Dimensional Properties	Class B		Class A	
	d	L	d	L
Body <sup>a</sup> Vertical Flatness V	$\leq 0.4\text{mm}$	$3\text{m}^c$	$\leq 0.3\text{mm}$	$3\text{m}^c$
	and		and	
	$\leq 0.3\text{mm}$	$1\text{m}^c$	$\leq 0.2\text{mm}$	$1\text{m}^c$
Horizontal flatness H	$\leq 0.6\text{mm}$	$1.5\text{m}^c$	$\leq 0.45\text{mm}$	$1.5\text{m}^c$



<sup>a</sup>Automatic measurement equipment shall measure as much of the rail as possible but, at least the body. If the whole rail satisfies the body specifications, then measurement of end and overlap is not mandatory.

<sup>b</sup>Automatic measurement techniques are complex and are therefore difficult to

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	<p>define but the finished rail flatness shall be capable of being verified by straight edge as shown in the above drawings.</p> <p><sup>c</sup> 95 % of delivered rails shall be within limits specified, with 5% of rails allowed outside the tolerances by 0.1 mm.</p>
<b>15.</b>	<p><b>13 QUALIFYING CRITERIA</b></p> <p>The following test shall be done for each rail section, grade and class after any change in the process of manufacture which may affect the results or annually for first three years for each contract. The first set of tests would be conducted prior to commencement of production for supply of rail under the contract and will be witnessed by purchaser or his nominated inspecting agency. If results of these three years are consecutively found satisfactory, this frequency may be relaxed to three years by Purchaser. The test shall be undertaken by the supplier to demonstrate compliance with the qualifying criteria. If so desired, the purchaser /Inspecting Agency should be provided all facilities to check the sample and witness the test.</p> <ul style="list-style-type: none"> <li>a) Residual stress measurement.</li> <li>b) Fracture toughness measurement</li> <li>c) Fatigue test</li> <li>d) Fatigue Crack Growth Rate Test</li> <li>e) Variation of centre line running surface hardness (for 1175HTgrade)</li> </ul> <p>The samples for these tests shall be collected from finished rails. These samples shall not be subjected to any further mechanical or thermal treatment. The tests shall be carried out by an accredited/recognized laboratory approved by the purchaser and the test results shall be reported to the purchaser. The purchaser shall have access to all test records, calibrations and calculation which contribute to the final results.</p> <p>In case any sample fails to meet the requirement laid in the qualifying criteria the manufacturer shall review its process of manufacturing within six months to eliminate any shortcomings and fresh qualifying criteria test shall be undertaken under intimation to the Purchaser.</p>
<b>16.</b>	<p><b>14.1.1</b> Following acceptance tests shall be conducted for Grade 880,1080HH, 880NC,R260 and 1175HT Rails:</p> <ul style="list-style-type: none"> <li>a) Chemical Analysis</li> <li>b) Tensile Test</li> <li>c) Sulphur Print</li> <li>d) Hardness test</li> <li>e) Falling Weight Test</li> <li>f) Hydrogen content</li> <li>g) Inclusion Rating Level</li> </ul>
<b>17.</b>	<p><b>14.1.2</b></p> <p>Following acceptance test would be carried out in addition to the tests stipulated in 14.1.1.</p> <p><b>For R260 Grade</b></p> <ul style="list-style-type: none"> <li>1.Decarburisation Test</li> <li>2.Determination of total oxygen content</li> </ul>

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**For 1175HT**

1. Decarburisation Test
2. Determination of total oxygen content
3. Microstructure

The following tests out of the Acceptance tests for 1175HT, would be necessarily carried out after heat treatment

- a. Tensile test
- b. Hardness test
- c. Microstructure test

For Grade 1080 Head Hardened (1080 HH) Rails all the tests stipulated in Para 14.1.1 above shall be conducted except tensile test and hardness test, prior to heat treatment. Following tests shall be carried out after heat treatment:

1. Tensile Test
2. Hardness Test
3. Macroscopic Test

**18. 17.1 For 880, 880NC and R260 grade Rails**

**19. 17.1.1 Nature of Tests**

The manufacturer shall determine the tensile properties of the steel in accordance with the requirements of IS: 1608. Such tests shall be made on standard test pieces taken from position shown in figure 4.

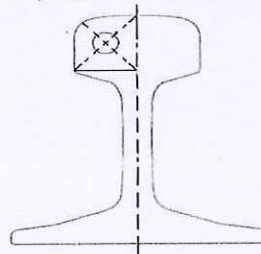


Fig.4 The location of sample for YS, UTS and Elongation in rail head for 880, 880NC and R260 grade rails

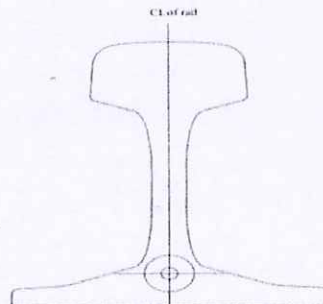


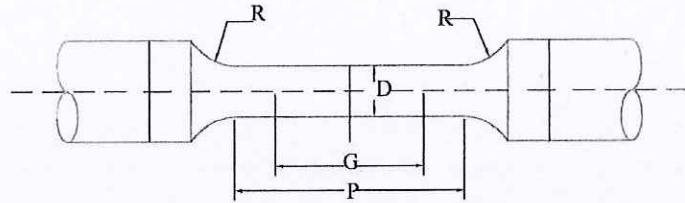
Fig.4(a) The location of sample for YS, UTS and Elongation in rail foot for R260 grade rails

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**Fig .5 STANDARD ROUND TENSILE TEST PIECE**

Three sizes of the standard test piece, as shown in fig.5 are given in table 3, any of which may be adopted.

**Table-3**

Diameter	Area of cross section	Gauge length	Parallel length	Radius at Shoulder
D mm	A mm <sup>2</sup>	G mm	P mm	R mm
20.64	333.33	100	120	18
14.56	166.67	75	90	13
10.00	78.50	50	55	10

**20. 17.1.2 Extent of Tests**

**(a) for 880 and 880NC grade Rails**

For casts ≤ 150t, one test per cast  
 For casts > 150t, two tests per cast, one sample taken from first half of the cast and the other from the second half and different strand

**(b) for R260 grade Rails**

The tensile test in rail head shall be carried out with the testing frequency of one test per heat/cast.

**(c) for R260 grade Rails foot sample**

The tensile test in rail foot shall be carried out with the testing frequency of one test per 2000T.

Note: After results of 1000 heats on rails supplied by manufacturer, frequency of Yield strength (YS) would be reviewed as mutually agreed by purchaser and manufacturer.

**21. 17.3 For 1175HTgrade Rails: General:**

The tensile test shall be carried out with the testing frequency as given below:  
 One test per 1000 tonnes<sup>a, c</sup>

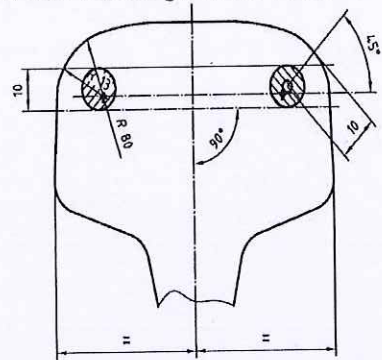
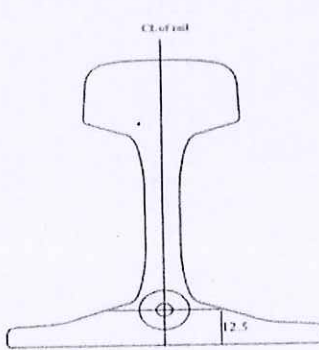
<sup>a</sup> Samples shall be taken at random but only rails from blooms outside the mixing zone between heats when continuously cast in sequence.

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<p>° Samples shall be cut from heat treated rails</p> <p>Test samples from the rail shall be taken as given in figure given below. Results obtained shall comply with the values given in Table-1</p>  <p><b>Key</b></p> <ul style="list-style-type: none"> <li>• Intersecting point of the R13 and R80 radii (60E1 section)</li> <li>○ Location at the centre of the tensile test piece</li> <li>⊗ Area to be checked for microstructure</li> </ul> <p>Figure- Location of tensile test piece and microstructure checks</p>  <p>Figure-The location of sample for YS, UTS and Elongation in rail foot</p> <p><b>Method of test:</b> The manufacturer shall determine the tensile properties in accordance with EN ISO 6892-1 using a proportional circular test piece of 10 mm diameter. Before testing, the tensile test pieces should be maintained at a temperature of 200 °C for up to 6 h. In the case of dispute, the tensile test pieces shall be maintained at a temperature of 200 °C for 6 h before testing.</p> <p><b>Retest procedures:-</b> If any test fails to meet the requirements then two tests shall be performed on samples from rails in close proximity to the original. Should either retest fail the failed material shall be re-treated and tested. The minimum values in Table-1 shall apply in such cases.</p>
<p>22. 18.1 For Grade 880/1080HH/880NC/R260/1175HT Rails</p>
<p>23. 18.4 Decarburisation for R260 and 1175HT grade Rails: The decarburisation depth shall be assessed by means of a hardness test at a frequency given below. After a minimum of preparation of the rail surface</p>

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(polishing) a hardness test according to the method indicated in 19.0 shall be performed at three points. None of the results of hardness obtained shall be lower than the minimum value specified for the grade, reduced by 7 HBW. Alternatively to the hardness test, or if there are any doubts regarding the conformity with the requirements on decarburization, metallographic investigations shall be carried out according to the manufacturer's decision or upon request of the purchaser. Photomicrographs showing the depth of decarburisation allowed are shown in Figure (a). Figure (b) defines the rail head surface for decarburisation checks. No closed ferrite network shall be observed below 0,5 mm depth measured anywhere on the rail head surface.

**Testing Frequency for 1175 HT grade rails-**

One per 500 tonnes of re-heated and mill heat treated <sup>a, c</sup>

<sup>a</sup>- Samples shall be taken at random but only rails from blooms outside the mixing zone between heats when continuously cast in sequence.

<sup>c</sup>- Samples shall be cut from heat treated rails.

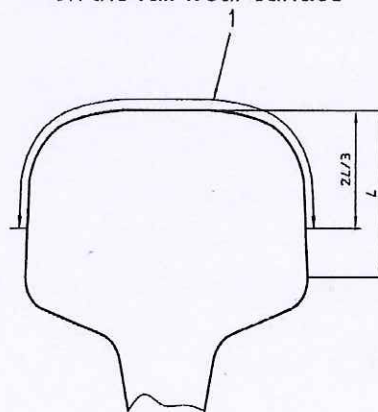
**Testing Frequency for R260 grade rails**

One per 1000 tonnes of part thereof

Samples shall be taken at random but only rails from blooms outside the mixing zone between heats when continuously cast in sequence. Samples shall be cut after rolling.



Figure (a) - Photomicrograph (x 100) showing depth of decarburisation allowed on the rail wear surface



Key 1 decarburisation limits apply to this part of rail head.

Figure (b) - Range of extent of rail head surface for decarburisation checks

**24. 18.5 Determination of total oxygen content for R260 and 1175HT grade rails**

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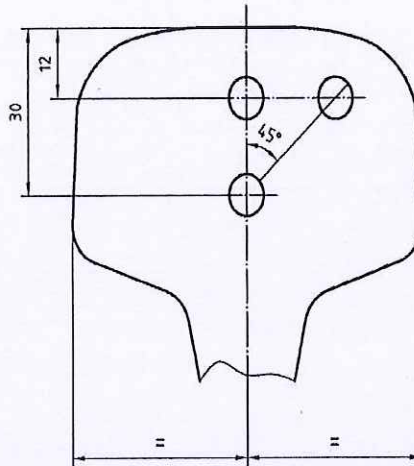


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**General**

Total oxygen content shall be determined in the liquid steel, following solidification of the sample, or from the solid rail head, in the positions as shown in Figure below,



**Preparation of the sample**

The thickness of the transverse rail slice shall be 4 mm. Samples shall be prepared in accordance with EN 10276-1.

**Measurement:**

The measurement of oxygen shall be made using an automatic machine

The testing frequency given below:-

One test per sequence

Note: Samples shall be taken at random but only rails from blooms outside the mixing zone between heats when continuously cast in sequence.

Total oxygen content shall be max. 20 ppm given in Table 1.

- i) If oxygen content is more than 20ppm, all heats of the sequence shall be checked.
- ii) Heats with a total oxygen content greater than 30 ppm shall be rejected.
- iii) Atleast 95% of heats shall have a total oxygen content less than 20ppm. Otherwise all the heats of the sequence will be rejected. For sequence having number of heats less than 20, 95% heats would be interpreted as all the heat except for one.

**25. 19 Hardness Test and Microstructure**

**26. 19.1 For 880, 880NC and R260 Grade Rails**

**27. 19.1.2 Extent of Test**

Test on 10% of the casts shall be carried for the purpose of record and for any corrective action as required.

Results of the test should be average of five observations on the same test piece.

The hardness values should be as per Table-1

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Brinell hardness tests (HBW 2,5/187,5) shall be carried out in accordance with EN ISO 6506-1. Other measurement techniques, for example Rockwell or Vickers hardness testing, may be used, but in case of dispute Brinell hardness testing in accordance with EN ISO 6506-1 shall be used. 0,5 mm shall be ground from the rail running surface before a hardness impression is made

**28. 19.3 For 1175HT Grade (Heat Treated) Rails**

Brinell hardness tests (HBW 2,5/187,5) shall be carried out in accordance with EN ISO 6506-1 at the frequency of one test per 100 tonnes of heat treated rails. Other measurement techniques, for example Rockwell or Vickers hardness testing, may be used, but in case of dispute Brinell hardness testing in accordance with EN ISO 6506-1 shall be used.

The hardness values measured shall meet the requirements given in Table below.

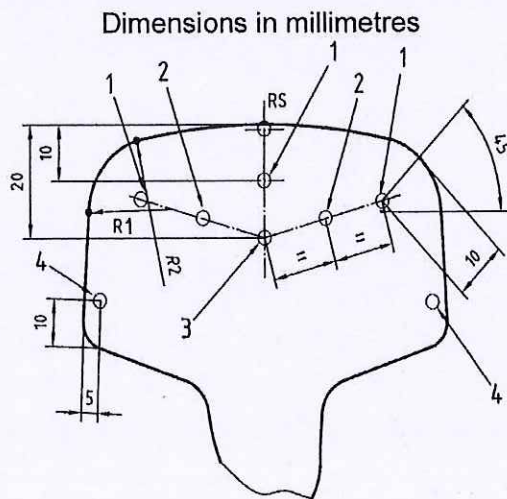
**Table - Hardness testing positions and requirements**

Position	Rail Steel Grade-1175HT
RS <sup>a</sup>	350 to 390 <sup>b</sup>
1	≥ 340 min
2	≥ 331 min
3	≥ 321 min
4	≥ 340 min

<sup>a</sup> RS = Point on the centre line rail running surface.

<sup>b</sup> If the hardness exceeds 390 HBW, the rail is acceptable provided the microstructure is confirmed to be pearlitic, and the hardness does not exceed 405 HBW.

The testing positions are shown in Figure below.



**Key** 1,2,3 and 4 location of hardness testing exact intersecting points of the radii  
For hardness distribution of the heat treated rails, the following shall apply:

$$HBW2 > HBW3 + 0,3 (HBW1 - HBW3),$$

Where HBW1, HBW2 and HBW3 are the mean hardness values at position 1, 2

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or 3 respectively. Also the difference between any of the three positions shall be no more than 30 HBW.  
The hardness on the centre line of the head crown shall not vary by more than 30 HBW on any individual rail.  
0,5 mm shall be removed from the rail running surface before a hardness impression is made.

**19.3.1 Microstructure**  
General  
Microstructures shall be determined at a magnification of X500.  
The microstructure shall be verified for 1175HT Grade rails at a frequency of one test per 100 tonnes of heat treated rails <sup>a, c</sup>. The testing position in the rail head shall be as shown in Figure at Para 17.2.  
<sup>a</sup> Samples shall be taken at random but only rails from blooms outside the mixing zone between heats when continuously cast in sequence.  
<sup>c</sup> Samples shall be cut from heat treated rails  
The microstructure shall be fully pearlitic with no martensite, bainite or grain boundary cementite.

**29. 20 FALLING WEIGHT TEST**  
**20.1 Nature of Test**

20.1.1 The single guided falling weight test shall be carried out, the minimum height of the drop (in m) varying in relation of the mass per unit length of the profile  $M_r$  (in Kg) and the mass of the falling weight selected  $M_m$  (in Kg) according to the formula-

$$H = 150 \frac{M_r}{M_m}$$

Falling weight test piece minimum 1.3 meters long shall be cut from a location as per choice of the Inspecting Agency. For heat treated rails, the sample shall be taken after heat treatment. The test piece shall be placed in horizontal position with the head up on two iron or steel supports resting on a solid metal anvil. The weight of the metal anvil block shall not be less than 10,000 kg and its supporting base would be sufficiently rigid. No timber or spring shall be permitted between the rail supports and the anvil or between the anvil and the foundation. Block guides shall be provided which shall permit free fall of the weight. The upper surface of the supports shall be curved to a radius of not more than 125 mm.

One blow shall be delivered midway between the supports, by means of a freely falling iron weight or 'TUP', the striking face of which shall be rounded to a radius of not more than 125mm. The weight of the "TUP", the distance between the centre of the bearings, the height between the surface of the rail and the bottom of the "TUP", before the latter is released shall be as specified in table-4.

**Table - 4**

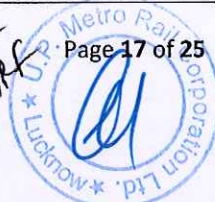
Rail section	*Weight of TUP (Kg)	**Distance between centers of bearers(m)	Height of drop (m)
52kg	1000	1.00	Measured from the top of the rail head and variable according to the above formula.
60E1	1000	1.00	
68kg	1000	1.00	

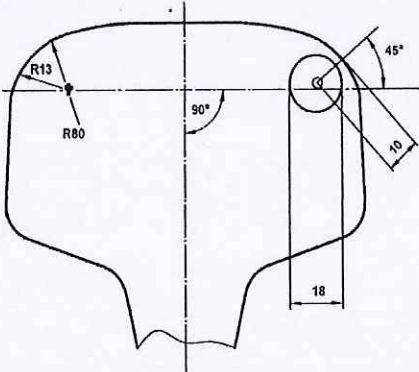
\*1000Kg in principle but it may be vary according to the formula above

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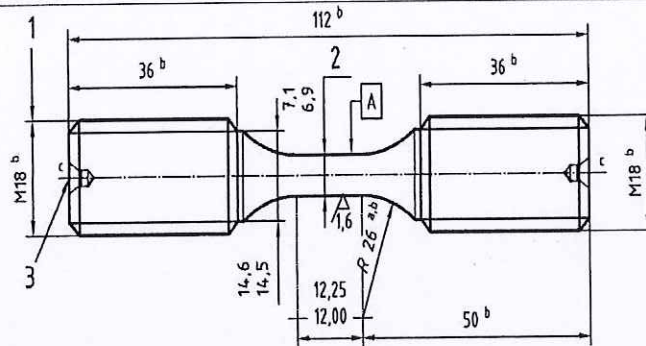
	<p>**1.00 m in principle but may vary between 1.00 m and 0.85 m</p> <p><b>Note-i)</b> The value of the height should be rounded to the nearest first digit of decimal.</p> <p>ii) The height for 60 E1A1 rail profile would be the same as that for 60E1 rail profile.</p>									
<p><b>30. 22.2.2 Qualifying Criteria:</b></p>	<p>The values of K<sub>1c</sub> shall comply with table given below:</p> <table border="1" data-bbox="352 544 1362 701"> <thead> <tr> <th>Steel grade</th> <th>Minimum single value K<sub>1c</sub>(MPam<sup>1/2</sup>)</th> <th>Minimum Mean K<sub>1c</sub> (MPam<sup>1/2</sup>)</th> </tr> </thead> <tbody> <tr> <td>880, 880NC and R260</td> <td>26</td> <td>29</td> </tr> <tr> <td>1175HT and 1080HH</td> <td>30</td> <td>32</td> </tr> </tbody> </table> <p>Note: In some circumstances K<sub>Q</sub> values can be used for the purpose of qualification – see B.6 of appendix XI.</p>	Steel grade	Minimum single value K <sub>1c</sub> (MPam <sup>1/2</sup> )	Minimum Mean K <sub>1c</sub> (MPam <sup>1/2</sup> )	880, 880NC and R260	26	29	1175HT and 1080HH	30	32
Steel grade	Minimum single value K <sub>1c</sub> (MPam <sup>1/2</sup> )	Minimum Mean K <sub>1c</sub> (MPam <sup>1/2</sup> )								
880, 880NC and R260	26	29								
1175HT and 1080HH	30	32								
<p><b>31. 22.3 Fatigue test:</b></p>	<p>For 880 grade and 1080HH Grade rail</p>									
<p><b>32. 22.4 Fatigue test:</b></p>	<p>For R260 and 1175HT Grade rail</p> <p><b>Test method:</b> Constant amplitude fatigue tests shall be carried out in accordance with ISO 1099.</p> <p><b>Test pieces:</b> The test pieces shall be machined from the sample rail as shown in figure given below.</p> <p>Dimensions in millimeters</p>  <p>† intersecting point of the R13 and R80 radii (60 E1) O location of the centre of the test piece</p>									

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**Key**

- 1 screw threads (both ends) to be concentric with  $\varnothing A$  within 0,005 mm. Different forms (without threaded heads of test pieces) may also be used.
  - 2 cylindrical within 0,005 mm
  - 3 centre drill
    - a 26 mm radius shall run tangential with gauge diameter (datum dia 'A') without undercutting or leaving a shoulder
    - b general tolerance to be  $\pm 0,2$  mm unless otherwise stated
    - c specimen to be identified on each end
- Figure - Specimen for determining fatigue initiation life.

**Number of tests and test conditions:**

Test pieces for fatigue test shall be taken from 3 sample rails at least 3 m from the cut ends of the rail. Sample rails shall be from different heats and different strands.

A minimum of 3 test pieces shall be tested from each sample rail under the following conditions:

- test temperature shall be within the range  $+15^{\circ}\text{C}$  to  $+25^{\circ}\text{C}$ ;
- control variable shall be axial strain amplitude;
- strain cycle shall be symmetrical about the initial, zero load.

**Qualifying criteria:**

For a total strain amplitude of 0.00135, testing shall be done in such a way that peak strain shall be 0.00135 in tension and 0.00135 in compression, the life of each specimen shall be greater than  $5 \times 10^6$  cycles.

**33. 22.5 Fatigue Crack Growth Rate**

Test pieces for fatigue crack growth rate test shall be taken from 3 sample rails at least 3 m from the cut ends of the rail. Sample rails shall be from different heats and different strands.

Test method:

Tests shall be carried out in accordance with the general requirements of ISO 12108.

Test pieces:

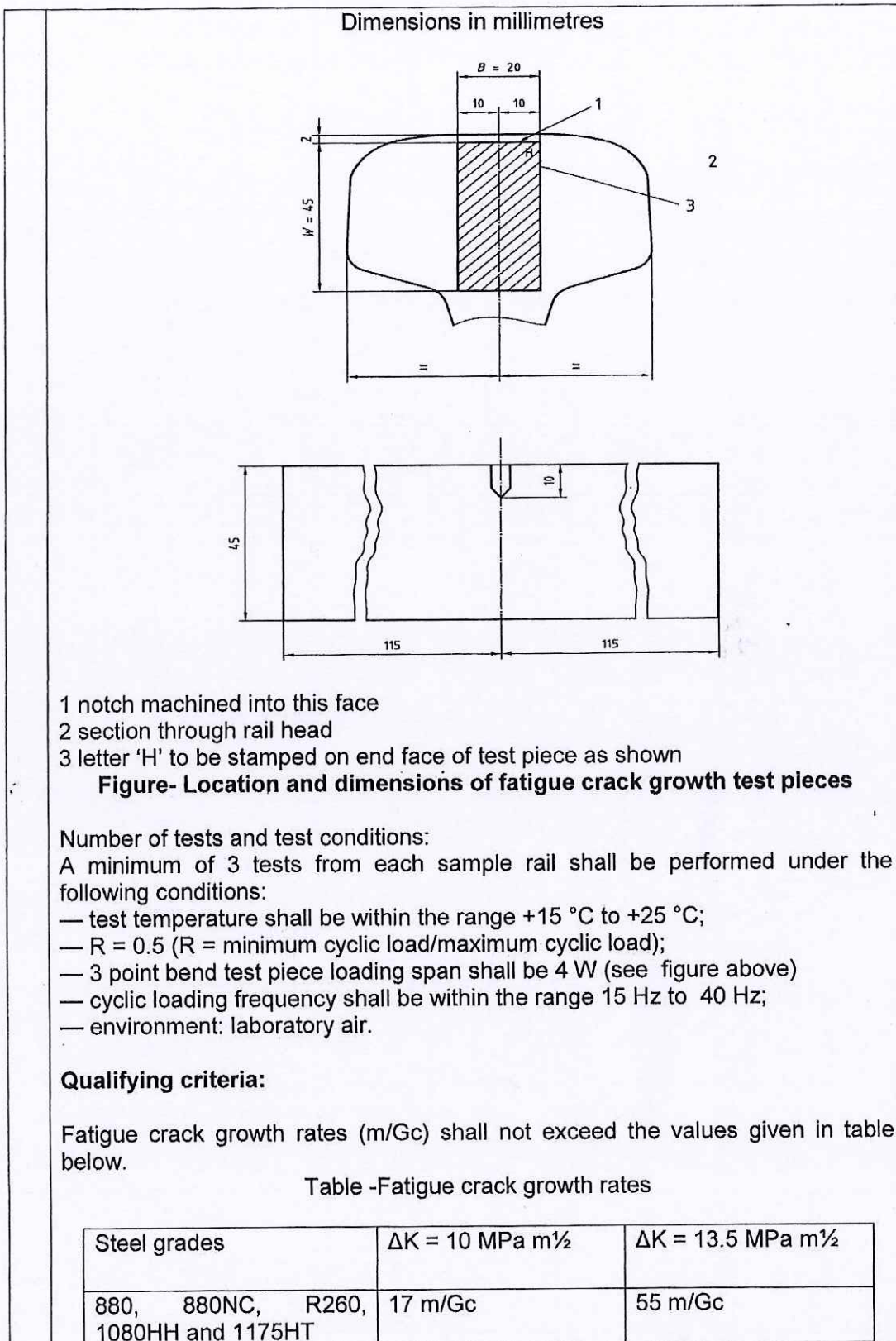
A three point bend, single edge notch test piece, of the dimensions and location within the rail shown in figure below shall be used.

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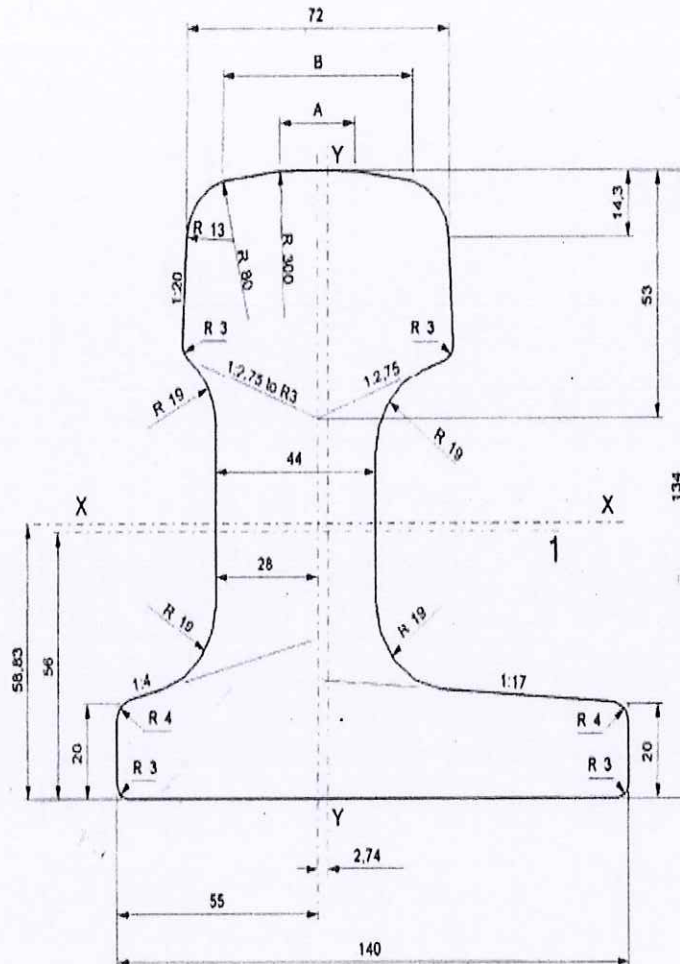
34.	<b>22.6 Variation Of Centre Line Running Surface Hardness For 1175HT Grade Rail</b> For the longest length of rail produced by the manufacturer, a one meter length of rail shall be taken from each end and at 20 m intervals from one end of the rail. These shall be hardness tested (HBW) in accordance with EN ISO 6506-1 along their length at 25 mm intervals on the centerline of the running surface after 0,5 mm has been ground away. The hardness results shall be no more than $\pm 15$ HBW from the mean result obtained.
35.	<b>23.7</b> For lifting rails, single point slinging is not permitted. For 13m long rails, there should be two lifting point spaced at 6 to 7.5 m apart and the maximum rail end overhang beyond the lifting point should not be more than half of the distance between the lifting point. For lifting longer rails the spacing between lifting points shall not be more than 15 m. The system should be an automatic rail handling system of suitable capacity such that it avoids any damage to the rail during handling. For jerk free handling, movement of the rail should be controlled and synchronized, both, in horizontal direction or cross travel and in the vertical direction or hoist. Clamping system should be such that it avoids point load on the rail. To avoid any undesirable stresses during handling, manufacturer shall issue detailed instructions for operation of the automatic long rail handling system as well as issue Do's and Don'ts for the safe operation.
36.	<b>24.1</b> The calculated weights of rails given in Appendix-I, II(Revised), IIA(Revised) and III of this specification shall be regarded as actual weights and payment shall be made on these weights unless otherwise agreed to.   



37.

**Appendix IIA(Revised)**  
**60E1A1(as per EN 13674-2:2006+A1:2010(E))**

Dimensions in millimeters



**Key**

- 1 Center line of branding
- Cross-sectional area : 92.95 cm<sup>2</sup>
- Mass per meter : 72.97 kg/m
- Moment of inertia x-x axis : 1726.9 cm<sup>4</sup>
- Section modulus-Head : 229.7 cm<sup>3</sup>
- Section Modulus- Base : 293.5 cm<sup>3</sup>
- Moment of inertia y-y axis : 741.2 cm<sup>4</sup>
- Section modulus y-y axis left : 128.4 cm<sup>3</sup>
- Section modulus y-y axis right : 90.1 cm<sup>3</sup>

Indicative dimensions A = 20.456mm  
 B = 52.053 mm

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38. APPENDIX- VII

**LADLE ANALYSIS OF RAIL STEEL**

Date	HEAT NO	PERCENTAGE											H <sub>2</sub> PPM	O <sub>2</sub> PPM		
		C	Mn	Si	S	P	Mo	Cr	V	Ni	Cu	Al			N	

**Maximum residual elements, % by mass**

Date	Heat no	Grade	Mo	Ni	Cu	Sn	Sb	Ti	Nb	Cu+10Sn	Others

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APPENDIX-X

39.

**DETAILS OF RAILS OFFERED FOR INSPECTION**

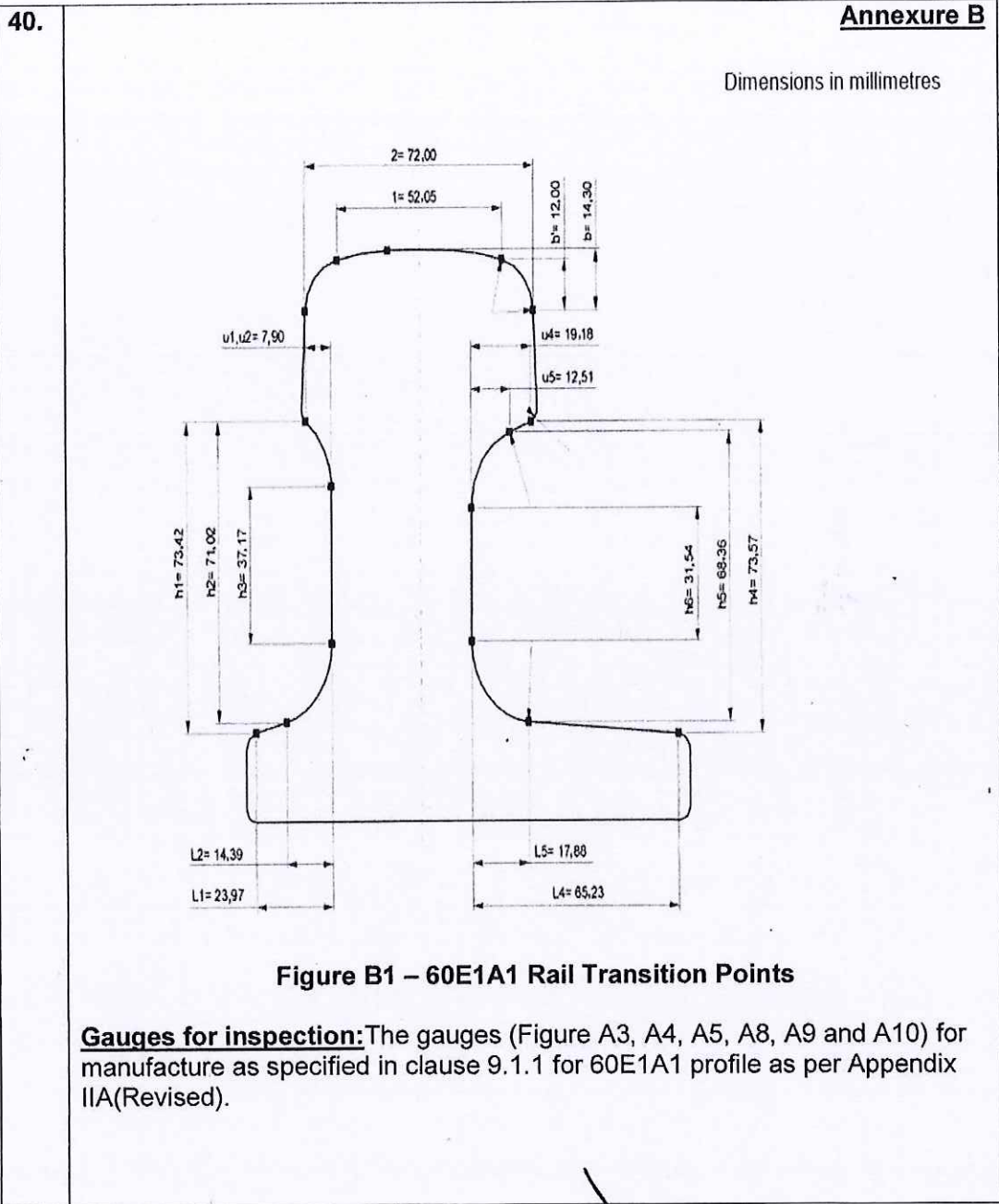
1	2	3	4	5	6	7
Date	Heat no	No of blooms produced from the heat	Wt. Of blooms produced from the heat	No of rails of length	No of rails found o.k. after internal inspection	No of rails rejected during internal inspection
260 M	260 M	260 M	260 M	260 M	260 M	260 M
259 M	259 M	259 M	259 M	259 M	259 M	259 M
130 M	130 M	130 M	130 M	130 M	130 M	130 M
129 M	129 M	129 M	129 M	129 M	129 M	129 M
26 M	26 M	26 M	26 M	26 M	26 M	26 M
25 M	25 M	25 M	25 M	25 M	25 M	25 M
24 M	24 M	24 M	24 M	24 M	24 M	24 M
23 M	23 M	23 M	23 M	23 M	23 M	23 M
18 M	18 M	18 M	18 M	18 M	18 M	18 M
17 M	17 M	17 M	17 M	17 M	17 M	17 M
16 M	16 M	16 M	16 M	16 M	16 M	16 M
13 M	13 M	13 M	13 M	13 M	13 M	13 M
12 M	12 M	12 M	12 M	12 M	12 M	12 M
11&10 M	11&10 M	11&10 M	11&10 M	11&10 M	11&10 M	11&10 M

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Research Designs & Standards Organisation  
Lucknow - 226 011  
DID (0522) 2450115  
DID (0522) 2465310



No. CT/Specification/T-12

Dated 27.11.2020

As per list enclosed

Sub: Corrigendum no. 1 to ACS no. 1 of IRS-T-12/2009.

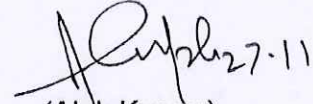
Ref: Railway Board letter no. 2017/Track-I(P)/Tender-60kg UIC  
Rails/JSPL-Vol. I dated 24.11.2020

\*\*\*\*

Please find enclosed herewith Corrigendum no. 1 to Addendum  
and Corrigendum Slip no. 1 of IRS-T-12/2009.

This has the approval of competent authority.

DA: 02 Pages

  
(Alok Kumar)

Director/Track-I  
For Director General/Track





**Corrigendum no. 1 to ACS no. 1 to Indian Railway Standard Specification for Flat Bottom Rails IRS-T-12:2009**

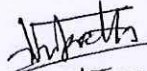
Sr. no. III (Existing) -

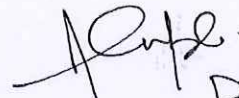
"Appendix V (wrongly written) at Page no. 34 is replaced with Appendix VI and VI-A for test rail for USFD testing of rails referred in Clause 10.3. Details of test rail for symmetrical rail section is shown in Appendix VI and details of test rail for asymmetrical rail section is shown in Appendix VI-A"

Sr. no. III (to be read as under)-

"Appendix V (wrongly written) at Page no. 34 is replaced with Appendix VI and VI-A (Rev.1) for test rail for USFD testing of rails referred in Clause 10.3. Details of test rail for symmetrical rail section is shown in Appendix VI and details of test rail for asymmetrical rail section is shown in Appendix VI-A (Rev.1)"

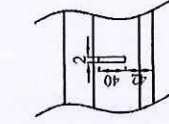
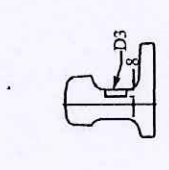
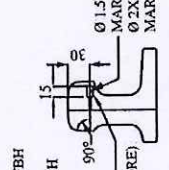
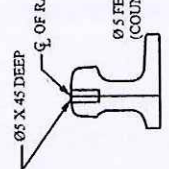
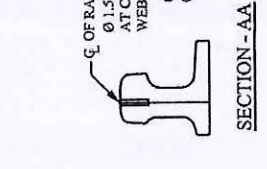
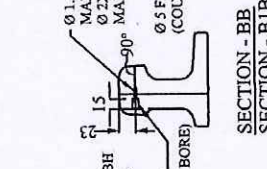
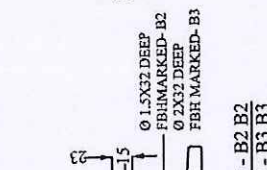
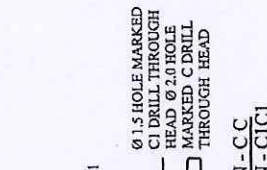
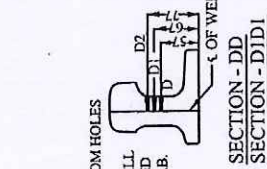
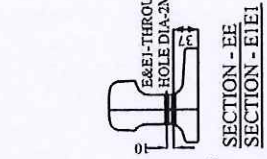
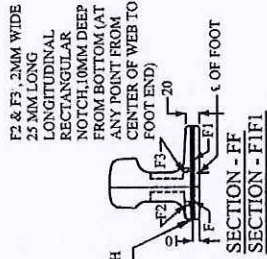
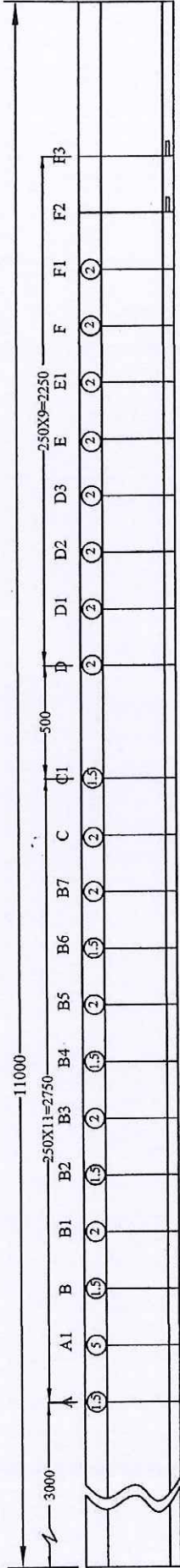
  
ADSE/Track

  
SSB/Track

  
Dir/Tr-I



APPENDIX-VI-A (REV. 1) NOV.-2020



1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. FBH DENOTES FLAT BOTTOM HOLE.
3. DIMENSIONS ARE NOT TO SCALE.
4. HOLES AT LOCATIONS A, A1, B1, B3, B4, B5, B6, B7, C, D3 & E1 ARE KEPT FOR ALIGNMENT/SETTING PURPOSE ONLY.
5. SENSITIVITY LEVEL SHALL BE WITH REFERENCE HOLES/NOTCHES AT LOCATIONS B, B2, C1, D, D1, D2, E, F, F1. i.e. TOP HEAD Ø 1.5 FBH — 1 NO. EACH SIDE SIDE HEAD Ø 2.0 FBH — 3 NO. FOOT WEB JUNCTION: Ø 2.0 THROUGH HOLE — 1 NO. LEFT FOOT-Ø 2.0 THROUGH HOLE (LENGTH MIN 20MM) AT THE CENTRE OF SIDE OF FOOT (AT ONE SIDE) — 1 NO. RIGHT FOOT-Ø 2.0 THROUGH HOLE (LENGTH MIN 20MM) AT THE CENTRE OF SIDE OF FOOT (AT OPP NOT IN SAME LINE ALONG THE LENGTHSIDE) SIDE — 1 NO. IT IS ESSENTIAL THAT THE BOTTOM OF ALL BLIND HOLES ARE DRILLED FLAT FOR FBH HOLES.
8. SPECIFIED HOLE TOLERANCE  
1.5 MM HOLE: 1.5 TO 1.55 MM  
2.0 MM HOLE: 2.0 TO 2.06 MM  
5.0 MM HOLE: 5.0 TO 5.08 MM  
(ALL OTHER TOLERANCES OF THE ABOVE HOLES SHALL BE IN ACCORDANCE WITH ASTM E-42R)
9. NOT TO SCALE
10. LOCATION OF ARTIFICIAL DEFECTS ALONG THE RAIL LENGTH MAY VARY AS PER THE PROBE LOCATION IN THE PARTICULAR UTM SYSTEM AND TEST RAIL SHALL BE OF MINIMUM 110M LENGTH.
11. BRAND MARKS MAY BE ROLLED IN RELIEF ON ANY SIDE OF WEB. HOLES D, D1, D2 and SLOT D3 WOULD BE ON BRANDED SIDE ACCORDINGLY.

FOR ASYMMETRICAL RAIL SECTION



Handwritten signatures and notes: "Ade Frank", "Rudra", "De-1 for E", and "W. J. Singh" with "SSEI Track" written below.

	<p>Supplier shall submit request letter and details at least one month in advance. Port handling charges as per documentary proof (paid to Port authority only) will be reimbursed to supplier in the same currency as paid to port authority. Stamp duty charges if any shall be borne by supplier.</p> <p>(ii) The 1080 grade HH Rails, shall be imported by the Supplier as CIF, Port. The supplier shall be responsible for all the remaining activities on arrival of these materials at port such as their clearances &amp; taking delivery of these materials including coordination with the customs authorities, shipping lines, port authorities etc. complete. The supplier shall be responsible for project import registration for availing the concessional custom duty. The supplier shall also be responsible for their safe transportation from port to Purchaser's storage site at Kanpur and Agra without causing any damage to them duly taking proper care &amp; precaution &amp; following appropriate methods including loading, unloading, local transport and temporary storage at port city (if required), handling / re- handling, coordination with port and transport authorities, obtaining necessary transport permit including demurrage (if any), transit insurance and proper stacking/storage with proper accountal etc. as directed by engineer. UPMRC shall facilitate recommendation / sponsoring letter from Ministry of Housing &amp; Urban Affairs, Government of India/ Government of Uttar Pradesh for availing the concessional custom duty in term of GOI Notification number 42/96 Custom dated 23.07.96. <b><u>Supplier shall also be responsible facilitate for finalization and closing of Project Import Registration after completion of supply with custom department.</u></b></p>
ITB 14.7	Tenderers shall quote a fixed price for the entire supplies on a "single responsibility" basis such that the total tender price covers all Supplier's obligations mentioned in or to be reasonably inferred from the Tender Documents. Varying or differential rates for part of supply are not permitted. Items against which no price is entered by the Tenderer will not be paid for by the Purchaser when executed and shall be deemed to be covered by the prices for other items.
ITB 15.1	<p>Bid Prices shall be quoted in the following currencies:</p> <p>(i) The Bidder may express the Bid Price in Indian Rupees or other freely convertible international trading currency (ies) (USD/Euro/JPY etc.) or any combination of these.</p>
ITB 18.3	<b>Period of time the Goods</b> are expected to be functioning. The supplier shall furnish an unconditional warrantee as provided in Special Condition of Contract.



	<p>by the Purchaser. However, Bank charges on LC amendment, if any, at the request of supplier shall be to Supplier's account. All other charges shall be to Supplier's account. LC shall be opened as per quarterly cash flow statement based on delivery schedule and the payment schedule indicated in sub-clause 1 above.</p> <p>4. INR Portion (i.e. Clearance and Transportation): 100% payment will be made on receipt of goods at Kanpur and Agra Store, in undamaged condition on submission of invoice in two copies. <b><u>Payment directly to the nominated Service Provider for imported rails on authorisation of foreign supplier is also permitted.</u></b></p> <p>5. Payment of custom duty: The custom duty at concessional custom duty rate by Project Import Registration in terms of Government of India Notification No. 42/96 custom dated 23.07.1996 will be paid directly by UPMRC to Custom authority on furnishing of demand notice from Custom authority by the contractor at least 3 working days in advance for payment. The contractor will furnish the receipt of Custom Duty payment, Bill of Entry etc., to UPMRC and will be responsible for final assessment of Custom duty by Custom authority. Port handling charges will be reimbursed to the Supplier by UPMRC on submission of documentary proof.</p>
SCC 15.5	<p>The purchaser will establish a letter of credit from the purchaser's bank for payment of foreign currency. The payment in INR will be made directly by the purchaser. If the supplier does not receive payment within 60 days of submission of invoice accompanied with relevant document in acceptable form, the supplier shall be entitled to receive interest on the amount unpaid during the period of delay. The interest shall be calculated at an interest rate equal to state Bank of India prime lending rate.</p>
SCC 16	<p><b>16.1</b> For goods offered from outside the Purchaser's Country, the Supplier shall be entirely responsible for all taxes including GST, stamp duties, license fees, and other such levies imposed outside the Purchaser's Country.</p> <p><b>16.2</b> For goods offered from within the Purchaser's country, the Supplier shall be entirely responsible for all taxes including (<b>excluding</b> GST), duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser. <b><u>GST will be reimbursed to the Supplier on submission of documentary proof.</u></b></p> <p><b>16.3</b> If any tax exemptions, reductions, allowances or privileges may be available to the Supplier in the Purchaser's Country, the Purchaser shall use its best efforts to enable the Supplier to benefit from any such tax savings to the maximum allowable extent.</p> <p><b>16.4</b> With the tender submission, the tenderer shall submit the proof of GST registration (if applicable) or shall submit an undertaking that he will get registered with appropriate GST authorities (if applicable), in case of award of LOA to them.</p>
SCC 17.1	<p>The Supplier shall provide a Performance Security of: <del>10</del> <b>3%</b> of the Contract Price.</p>