

TENDER SPECIFICATIO

No. CLW/ES/C-36

ALT. - ~~C~~  $\Phi$  E

ENCLOSURES:

1. DRG No. CLW/ES/

ALT

2. DRG No.

ALT

TOTAL No. OF SHEETS IN THIS SPECN

ALT - C

SHEETS - 6

spe  
SPECIFICATION FOR COPPER FLAT

25kv AC ELECTRIC LOCOMOTIVES

CLASS: WAM-4 WAG-5A, WAG-5B, WAP-1 WCM-6 WCG-3, WAG7, WAP4.

Issued by: Dy. Chief Elect. Engrg/D&D  
Chittaranjan Locomotive Works  
P.O: Chittaranjan -713331.  
Dist: Burdwan  
West Bengal  
**I N D I A**

जाँचा  
CHKD

अधिकृत  
DRN.

COPPER FLAT

*Handwritten signature*  
7/3/99

उप.मु.वि.अ. (अभि.)  
DY. CEE. (D)

चित्तारंजन रेल इंजन कारखाना  
पश्चिम बंगाल, भारत  
CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA

क्रमांक/NO. CLW/ES/C-36/ $\Phi$ E  
दिनांक/DATE: 6-3-99

DETAILS OF ALTERATIONS

<u>ALTNO.</u>	<u>DATE</u>	<u>Description</u>	<u>Signature</u>	<u>Remarks</u>
A	25-7-98	completely reformateed Tolerances on dimen- sions made in accorda- nce with IS:3052-1974	Sd/- 25-7-88	
B	29-3-93	Specn. for copper flat size 80x7mm used for D.C.Loco class WCG-3/WCM-6 added.	Sd/- 29-3-93	
C	06-3-99	RE-TYPE, WAG1, WAP4 added.	<i>[Signature]</i>	
D	30-5-06	Source of raw material is changed in para 4.2.2 vide letter no. ELDD/3238/ AKM dtd. 26-5-2006 sht. no. 3 is deleted and new sheet no. 3A is added.	<i>[Signature]</i>	
E	29-01-08	Qty/Loco. of copper flat of sizes (ie. 40x7 & 30x4) has been increased vide Dy.CEE/EL letter No. ELE/T/ 5, dtd. 12-01-2008, against the proposal No. ELDD/3238/ Conv./AC, dtd. 12-01-2008.	<i>[Signature]</i> 30/18	

3A

जाना CHKD	copper flat	<i>[Signature]</i> 2/3/99 उप.मु.वि.ज. (अभि.) DY. CEE. (D)	चिततरंजन रेल इंजन कारखाना पश्चिम बंगाल, भारत CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA क्रमांक/NO. CLW/ES/C-3610/E दिनांक/DATE: 06-3-99
आवेकित DRN.			

1.0 Title: Scope.

पृष्ठ.3A  
Sheet

1.1 This specification covers the manufactures, testing and supply of copper flat of the following sizes required to be used in the assembly of various control panels mounted inside the electric locomotives: -

- i) 40x7mm section, ii) 30x4mm section, iii) 80x7mm section Alt-B

2.0 Governing Specification.

2.1 Assistance has been taken from IS:1897-1983, IS:3052-1986 and IS:191-1980 in preparation of this specification.

3.0 Deviation:

3.1 Any deviation from the standards laid down with a view to improve the performance and reliability of the equipment, may be given due consideration provided full particulars with justification thereof are furnished along with the offer.

4.0 Technical Specification :

4-1 The copper flat shall be made of bright annealed (O) copper as per IS:1897-1983. It shall meet all the properties indicated in IS:1897 (latest version).

4.2 Raw-material:

4.2.1 The raw material used in manufacturing copper flat shall be other electrolytic tough pitch (ETP) copper as per IS:191(Pt.v) 1980 or fire refined high conductivity (FRHC) copper conforming to IS:191(Pt.VI) 1980.

4.2.2 The rectangular electrolytic copper conductor (Strips) shall be drawn from imported (except Asian Origin) copper wire bar/CCC rod/semi finished base stock or indigenously produced copper wire bar/copper bar/CCC rod of M/s. Hindustan Copper Ltd. or M/s. Hindalco. (Birla Copper) or M/s. Sterlite Industries (India) Ltd. It may be obligatory to produce the procurement documents on demand of inspection authority. (D)

4.2.3 The materials from other reputed suppliers may, however, be used with prior approval of Dy. Chief Elect. Engineer/Dev/CLW/Chittaranjan provided sufficient documentary proof regarding the quality and suitability of the proposed material is furnished. Use of any alternative material shall in no way effect contractual delivery.

4.3 The copper bar shall be supplied in dead straight length as given below: -

Section	Length	Qty./Loco.
40x7mm	2 mtrs.	231 Kgs./231 Kgs. (WAP-4/WAG-7) (E)
30x4mm	3 mtrs.	72 Kgs./65 Kgs. (WAP-4/WAG-7)
80x7mm	2 mtrs (Alt-B).	

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COPPER FLATS.

*Sub*

चित्तारंजन रेल इंजन कारखाना  
पश्चिम बंगाल, भारत

CHITTARANJAN LOCOMOTIVE WORKS  
WEST BENGAL, INDIA

उप.मु.बि.अ. (अभि.)  
DY. CEE.(D)

क्रमांक/NO. CLW/ES/C36/D/E  
दिनांक/DATE : 30-05-06

जांचा  
CHKD

आरेखित  
DRN.