

4751064/2026/O/o WM/Design/DMW/PT

TENDER SPECIFICATION

No: CLW/ES/3/0138

ALT.	A						
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ENCLOSURES

1.DRG NO. -----

CLW/ES/3/SK-1/0138, Alt. A

TOTAL NO: OF SHEETS : - 9

ALT	Nil	A		
Sheet	5	9		

SPECIFICATION  
FOR  
SET OF COPPER BRAID

FOR WAG-9 (Co-Co) &amp; WAP-5 (Bo-Bo) ELECTRIC LOCOMOTIVES


## ISSUED BY

DY.CHIEF ELECTRICAL ENGINEER/CON/TU

CHITTRANJAN LOCOMOTIVE WORKS

P.O. CHITTARANJAN, 713331

DIST - BURDWAN, WEST BENGAL, INDIA.


SPECIFICATION	Prepared By	Checked By	Reviewed By	CENTRE FOR D & D CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA
FOR	<i>Bag</i>	<i>Suc.</i>	<i>See</i>	
SET	JDM/Elect	SSE/Elect	SEE/D&D	
OF	APPROVED BY <i>Amans</i>			
COPPER BRAID	DY.CEE/CON/TU-I			DATE: 29-04- 2002 NO: CLW/ES/3/0138
	ALT	A		



## 4751064/2026/O/o WM/Design/DMW/PT

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SPECIFICATION FOR SET OF COPPER BRAID	Prepared By	Checked By	Reviewed By	CENTRE FOR D & D CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA 
	<i>Tar</i> JDM/Elect	<i>Sec.</i> SSE/Elect	<i>He</i> SEE/D&D	
	APPROVED BY <i>Chameen</i> DY.CEE/CON/TU-I			
			DATE: 29-04-2002 NO: CLW/ES/3/0138	
			ALT	A






- Measurement of initial resistance
- Temperature cycling (Heat 'ON' cycle and Heat 'OFF' cycle)
- Final resistance
- Tensile strength test

(i)	Rubber Shore A hardness	: $45 \pm 5$
	Elongation	: $\geq 230\%$
	Permissible temp. range	: $-70^{\circ}\text{C} \text{ ---- } +200^{\circ}\text{C}$ (continuous)
	Short time	: Max. $300^{\circ}\text{C}$
	Thermal ageing	: 168 hr. at $265^{\circ}\text{C}$
(ii)	Dielectric strength	: 7.5 kV
	Rated voltage	: 2.5 kV (Max.)
(iii)	Resistance	: Against oils, solvents, aggressive chemicals & ultra-violet rays.
(iv)	Colour	: Black
(v)	Application	: As thermal insulation of flexible cables.

5. **Routine Test** : - Same as above clause nos. i.e. 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8 & 4.10.

SPECIFICATION  FOR  SET  OF  COPPER BRAID	Prepared By	Checked By	Reviewed By	CENTRE FOR D & D CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA	
	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	 DATE: 29-04-2002 NO: CLW/ES/3/0138	
	JDM-Elect	SSE/Elect	SEE/D&D		
	APPROVED BY <i>[Signature]</i> DY.CEE/CON/TU-I				
ALT			A		




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Material shall be guaranteed for 18 months from the date of commissioning or 24 months from the date of despatch whichever is earlier. Any material found defective after use and does not give satisfactory performance due to design defect, bad workmanship and faulty materials, etc. shall be replaced or rectified free of cost by the suppliers.

## 11. Note

- 11.1 The tenderer shall confirm that the equipments are as either used in 3-Phase AC locomotive manufactured by ABB for Indian Railways or similar.
- 11.2 CLW reserves the right to procure material from only ISO certified firms.

SPECIFICATION  FOR  SET  OF  COPPER BRAID	Prepared By <i>JDM</i>	Checked By <i>SSE</i>	Reviewed By <i>SEE</i>	CENTRE FOR D & D CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL, INDIA  
	JDM/Elect	SSE/Elect	SEE/D&D	
	APPROVED BY <i>[Signature]</i> DY.CEE/CON/TU-1			
				ALT   A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>



REPAIRS OF 11% - CABLE TIE, 140 X 3.6 PA

TAILS OF 11% CABLE (IE, 11% TAILS)



DESIGNATION	DIMENSION	TENSILE STRENGTH (N/MM <sup>2</sup> )
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	Q	L	MIN.	MAX.
180	16	16	15	99

Material	Dimensions	High Temperature Withstand
140 X 3.6	3.6 140 4.0	

COLOUR:- NATURAL.  
MATERIAL:- POLYAMIDE 6-6 OR NYLON 66.  
1988 REF IDENT. NO.:- NBT402938P0002.

DETAILS OF 10:- EXP. INSUL. SLEEVE, 250 BK

MATERIAL :- SIVCON RUBBER BRAIDED HOSE, TANK TREATED.

APP' REF. IDENT, NO. :- 3EHW470061P0025.

NOTE:- FIRM SHOULD EMOSS/IMPRINT THEIR IDENTIFICATION MARK WITH YEAR OF MANUFACTURING ETC. ON THE EQUIPMENT.

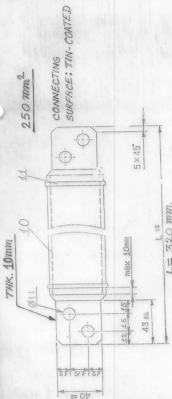


FIG. - 1 (TYPE-1)

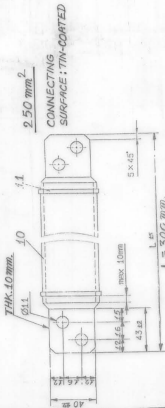
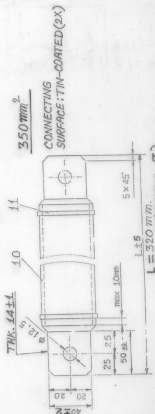


FIG.-2 (TYPE-2)



L = 320 mm.  
FIG.-3 (TYPE-3)

[illegible]