

**SPECIFICATION  
FOR  
SET OF CABLE CLEAT WITH DIN RAIL FOR TRACTION MOTOR  
FOR  
WAG-9 (Co-Co), Electric Locomotives**

Specification No : CLW/ES/3/0045

ISSUE DATE : 07.12.1998

ENCLOSURE

**DRG. NOS. CLW/ES/3/SK-1/0045**

ISSUED BY

DY.CHIEF ELECTRICAL ENGINEER/D-I  
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CHITTARANJAN - 713331  
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WEST BENGAL (INDIA)

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SSE/ Drg. (ELECT.)	SSE/ Drg. (ELECT.)	Dy.CEE/D-I
All alterations have been incorporated		

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**ALTERATION RECORD SHEET**

SL.No.	Date of Amendment	Page No.	Alteration No.	Reason	Authority
1.	23.06.99	6	A	<ul style="list-style-type: none"> <li>Height of sliding nut changed from 65 to 75.</li> <li>All SST material changed to Steel with galvanized except the item 'Bar'.</li> <li>Description of the item 'Plate' changed to 'Cable Cleat'.</li> <li>All the changes corrected in the scope of supply and the Fig. No.2 Cable Cleat ABB Identification 3EHP431059P0001 deleted.</li> </ul>	Sd/-
2.	09.10.99	6	B	All the Steel item (Ref. No. 2,4,5,6,7,8,9) material changed to Stainless Steel (AISI 304) side view of sliding nut added.	Sd/-
3.	12.07.2002	4 & 6	C	(i) Bolt M8 x 75 is changed to M8 x 90 with full Thread at Sheet No. 4 & 6. (ii) Fins of the Nuts (M6) should not be welded. It should be forged for proper tightness of The DIN Rail. (iii) Old technical data of Fibre Glass has been deleted by replacing new one at Clause No. 4, Sheet No.4.	Sd/-
4.	25.04.2003	3	D	Flammability test included in Sheet No.3	Sd/-
5.	22.10.2008	6	E	(1) Holding Clamp length increased from 60 mm to 75 mm. (2) Bolt is changed into Stud & its Dimension is M8 x 90 changed into M8 x 95. (3) DIN Rail holes are changed into oblong shape.	Sd/-
6.	26.06.2009		F	This item is to be deleted for WAP- 5 Loco	Sd/-
7.	12.01.15	4 & 6	G	Inclusion of quantity of items / Set of Cable Cleat with DIN Rail for Traction Motor instead of Qty/ Loco in Scope of supply (Sheet No.4) & Drg. No. CLW/ ES/ 3/ SK-1/ 0045 (Sheet No.6)	Sd/-
8.	XX.XX.2024	4&5	H	Inclusion of Hex nut and deletion of flying nut, revision of technical data, Scope of supply, source of hardware , Clause 8	

Specification has been digitized and all alteration have been incorporated.

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### Specification for Set of Cable Cleat with DIN Rail for TM

#### 1. SCOPE

This specification covers the manufacture and supply of Set of Cable Cleat with DIN Rail for TM for WAG-9 (Co-Co), 6000 HP, 3-Phase, 25 KV, 50 Hz, AC locomotive.

#### 2. SERVICE CONDITIONS

##### 2.1 Climatic & Environmental condition:

Maximum atmospheric temperature	70°C (In Sun) ,50°C ( In shade)
Normal Humidity	60%.
Maximum Humidity	100% saturation during rainy season
Altitude	160 m above mean sea level
Rainfall	Very heavy in certain areas. The equipment should be designed in such a way as to withstand its running at 10 Km/hr. in flood water level of 102 mm above rail level.
Atmosphere during hot weather	Extremely dusty and desert terrain in certain areas
Coastal areas	Locomotive and equipment will be designed to work in coastal areas in humid and salt laden atmosphere.
Vibration	The equipment , subsystem and their mounting arrangement will be designed to withstand vibrations and shocks encountered in service as specified in correspondence unless otherwise prescribed.

#### 3. STANDARDS

The relevant IEC, BS, DIN, Standard & Indian standard shall apply with respect to all materials used in the manufacture of Cable Cleat.

Flammability test as per IS: 11731 (Pt-1)1986, Class FH-1 (Horizontal Specimen method of test for solid insulating material) as a prototype testing

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## 4. Technical data of Fibre Glass as per Gr.EP-3, IS:10192/1982

Specific gravity	Min. 1.8
Flexural Strength (Cross Breaking Strength)	Min. 350 N/ mm <sup>2</sup>
Compressive Strength	Min. 450 N/ mm <sup>2</sup>
Tensile Strength	Min. 250 N/ mm <sup>2</sup>
Impact Strength Edgewise	Min. 75 KJ/ m <sup>2</sup>
Shear Strength	Min. 100 N/ mm <sup>2</sup>
Water Absorption (%)	Max. 0.10
Electrical Strength (Proof voltage at 90° C in Oil)	
(i) Flatwise (KV/mm)	Min. 12
(ii) Edgewise (KV)	Min. 40
Insulation Resistance	Min. 10000 Mega ohms
Dissipation factor at 50 Hz	Max. 0.02

## 4.1 Material Grade of Stainless Steel : AISI – 304 Gr.

## 5. Scope of Supply

## Quantity of items per Set of Cable Cleat with DIN Rail for Traction Motor

Fig No./sk No.	Description	ABB identification	Qty./ Set (in Nos)	Material
1.	BAR 280 X 30 X 5	3EHP431591P0001	02	Stainless Steel as per AISI 304 Gr.
1.	Sliding Nuts M8	-----	03	Stainless Steel as per AISI 304 Gr.
1.	Cable Cleat	3EHP431590P0001	01	Fibre Glass
1.	Washer M8	-----	06	Stainless Steel as per AISI 304 Gr.
1.	DIN Rail	-----	01	Stainless Steel as per AISI 304 Gr.
1.	Holding Clamp	-----	02	Stainless Steel as per AISI 304 Gr.
1.	Washer M6 (ID 6.4, OD 30, thk 4	-----	08	Stainless Steel as per AISI 304 Gr.
1.	STUD M8 with full thread	-----	03	Stainless Steel as per AISI 304 Gr.
1.	Hex Nut M6	-----	08	Stainless Steel as per AISI 304 Gr.

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#### NOTE TO THE FIRM

All Hardware are to be used should be CLW/BLW approved sources for Hardware.

#### 6. Submission of Tender Quotation :

- 6.1 All tender documents including the quotation shall be submitted in duplicate including any correspondence till a contract is finalized.
- 6.2 The tenderer shall be give sufficient information to prove that his factory has adequate facilities and capacity to manufacture the Cable Cleat to meet fully the technical requirements of the specification and quality of materials and workmanship.
- 6.3 Quotation shall not be considered complete unless all information is furnished and are therefore liable to be rejected .
- 6.4 Detailed drawings of the Cable Cleat should be submitted for approval of purchaser.

#### 7. Drawings :

The following drawing is attached with the specification :

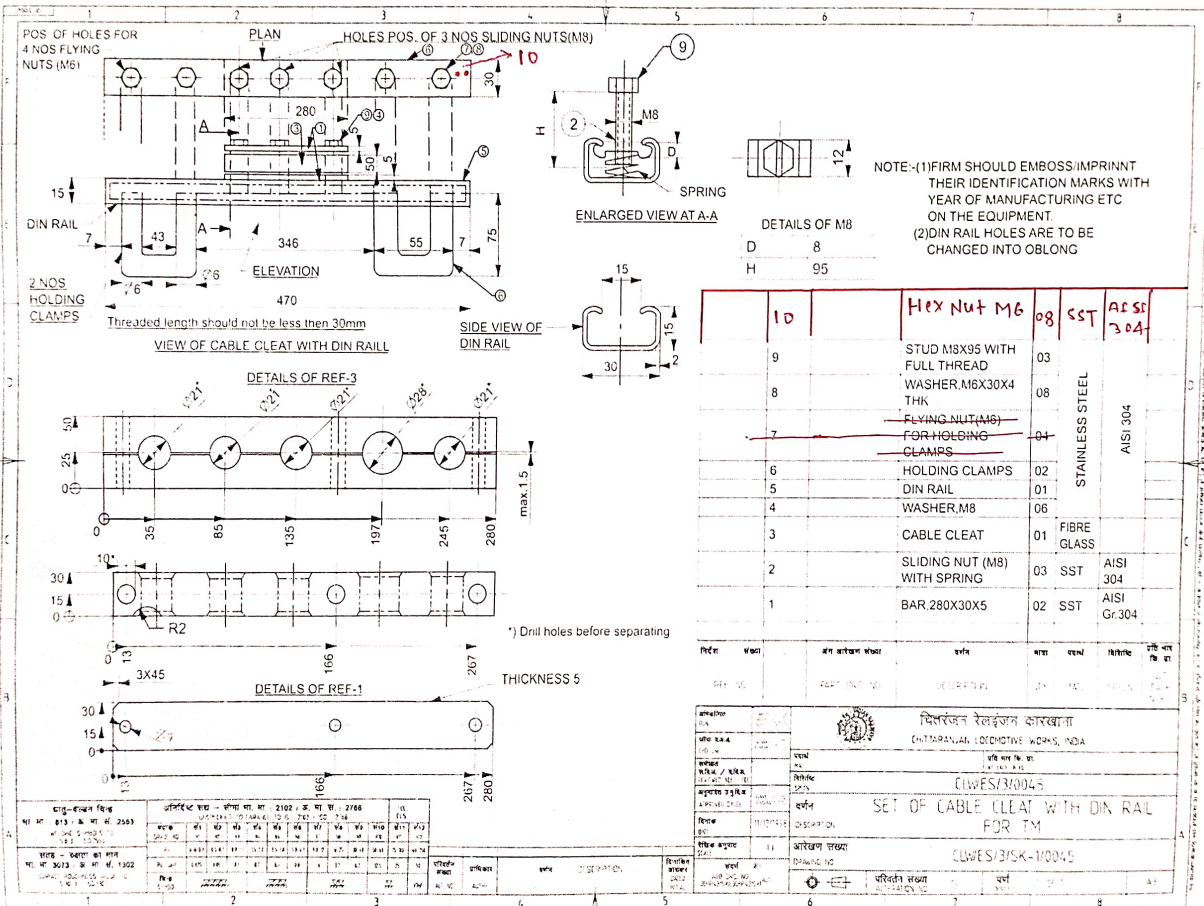
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7.1 Technical documents and drawings to be furnished by the supplier as part of the contract.

#### 8. Technical Documents to be Supplied by the Supplier:

- i. Type test reports : In soft & hard copy (one set)
- ii. Routine test reports along with each set : In soft + hard copy (one set)

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