Enclosure:

Drawing No: (i) CLW/ES/3/SK-3/0150/2/C

(ii) CLW/ES/3/SK-4/0150/2/C

(iii) CLW/ES/3/SK-5/0150/2/C

(iv) CLW/ES/3/SK-7a/0451/D

(v) CLW/ES/3/SK-7b/0451/ D

(vi) CLW/ES/3/SK-8/0451/ D

TECHNICAL SPECIFICATION FOR SET OF NON-METALLIC PLATES FOR 3-PHASE ELECTRIC LOCOMOTIVES

Specification No: CLW/ES/3/0451/ D

ISSUE DATE: - 07.02.2000

ISSUED BY:

DY. CHIEF ELECTRICAL ENGINEER/D-II

CHITTARANJAN LOCOMOTIVE WORKS

P.O: CHITTARANJAN - 713331

DIST. BARDHMAN (WEST), WEST BENGAL (INDIA)

Prepared By	Checked By	Approved By
JE/SSE-DESIGN	AEE/SEE/DESIGN	Dy.CEE/ D-II
02,002 2201014	, (22,022,023,014)	<i>Dy. GEE, D II</i>

ALTERATION RECORD SHEET

Amendment No.	Date of Amend.	Page No.	Alteration	Reason	Authority
А	07.01.02	5, 11	А	1. Qty./Loco deleted. 2. BUR Input Snubber for Bur ½ - 3EHI06612P0001 Sketch No.CLW/ES/3/SK-7/0451 added in Sheet No.11. 3. Insulating plate (Type-21) is deleted as this item is coming with set of cover (Cat. No. P/0/022, Specn No. CLW/ES/3/139/B).	s/d
В	16.04.03	5, 12	В	Drg. No. CLW/ES/3/0451 for Capacitor Separator for Filter Cubicle incorporated and Sheet No. 12 added.	s/d
С	17.02.22	5, 7	С	Material description, Fig. No. and material of Sl. No. 1 & 2 deleted at Sheet No. No. 5 Drg. No. SK-1 and SK-2 (CLW/ES/3/SK-1/0150/2 & CLW/ES/3/SK-2/0150/2) has been deleted at Sheet No. 7.	s/d
D		12	D	Drawing no. CLW/ES/3/SK-8/0451/C modified to CLW/ES/3/SK-8/0451/D	

NOTE: "Specifications have been digitized and all alterations have been incorporated"

Checked By	Approved By
AFF/SFF/DESIGN	Dy.CEE/ D-II
/\EL/GLE/BEGIGIV	Dy.OLL/ D II
	Checked By AEE/SEE/DESIGN

<u>INDEX</u>

SL No.	Description	Page No.
1.	SCOPE	4
2.	CLIMATIC AND ENVIRONMENTAL CONDITION	4
3.	STANDARD	4
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7.	SUBMISSION OF TENDER QUOTATION	6
8.	TECHNICAL DOCUMENTS TO BE SUPPLIED BY SUPPLIER	6
9.	QUALITY ASSURANCE	6

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JE/SOL-DESIGN	ALL/GLE/DESIGN	Dy.OEE/ D-11

SPECIFICATION FOR NON-METALLIC PLATES

1. <u>SCOPE</u>:

This specification covers the manufacture and supply of Set of Non-Metallic Plates for 3-Phase, 25 KV, 50 Hz, AC Locomotive.

2. Climatic and environmental condition: -

Maximum atmospheric temperature : +70°C (In Sun) &

: 50°C.(In Shade)

Humidity : 100% Saturation during rainy season.

Reference site condition

(i) Ambient Temperature : Max. 55°C, Min. 0°C

(ii) Humidity : 60 %

(iii) Altitude : 160 m above mean sea level

(iv) Rainfall : Very heavy in certain areas. The locomotive will be designed in such a way as to permit

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 corresponding IEC publications

unless otherwise prescribed.

3. STANDARD:

As per relevant IS/IEC.

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Page 5 of 6	Specification No. CLW/ES/3/0451	ALT - D
	Set of Non-Metallic Plates	

4. SCOPE OF SUPPLY:

NON-METALLIC PLATES:

SI. No.	Description	Ident. No.	Fig. No.	Material
1	BASE PLATE (Types 14)	3EHP 330155 P0001	SK-3	Glass Fibre Polyester Resin as per IS:11246.
2	INSULATING PLATE (Type-22)	3EHP 431629 P0001	SK-4	Glass Fibre Polyester Resin as per IS:11246.
3	BUR INPUT SNUBBER BUR-1/2	3EHI06612 P0001	SK-7	Hard Fibre (Equivalent of HM 35).
4	Capacitor Separator for filter cubicle(Fig.1 only)		SK-8	SRBGF, EP-3, IS:10192
5	DISTANCE PLATE (TYPE-16)	3EHP 431509 P0002	SK-5	PVC as per IS :6307

NOTE: 1) All materials should be fire retardant / self-extinguishing type as per IS: 11731 or any other relevant standard.

2) Firm identification mark, Type No., Material identification No., Month and Year of manufacturer of each item are required to be engraved.

5. DRAWINGS:

The following drawing is attached with the specification.

- (i) CLW/ES/3/SK-3/0150/2/C
- (ii) CLW/ES/3/SK-4/0150/2/C
- (iii) CLW/ES/3/SK-5/0150/2/C
- (iv) CLW/ES/3/SK-7a/0451/ D
- (v) CLW/ES/3/SK-7b/0451/ D
- (vi) CLW/ES/3/SK-8/0451/ D
- 5.1 Technical documents and drawings to be furnished by the supplier as part of the contract.

6. TESTS:

Type test and Routine test shall be carried out according to relevant IS/IEC Standard.

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		·

Page 6 of 6	Specification No. CLW/ES/3/0451	ALT - D
	Set of Non-Metallic Plates	

7. SUBMISSION OF TENDER QUOTATION:

- 7.1 The tenderer shall give sufficient information to prove that his factory has adequate facilities and capacity to manufacture the above materials to meet fully the technical requirements of the specification, quality of materials and workmanship.
- 7.2 Quotation shall not be considered complete unless all information is furnished and are therefore liable to be rejected.
- 7.3 Detailed drawings of the above materials should be submitted for approval of purchaser.
- 7.4 Past test reports (if any).

8. TECHNICAL DOCUMENTS TO BE SUPPLIED BY THE SUPPLIER:

- i) Type test reports
- ii) Routine test report along with each set
- iii) Detailed drawings

9. QUALITY ASSURANCE:

Quality assurance should be as per ISO: 9000.

NOTE: The tenderer must indicate the price of each items of the set separately.

Set of Plates Specn. No. CLW/ES/3/0150 Alt. 'C' break up into four specifications.

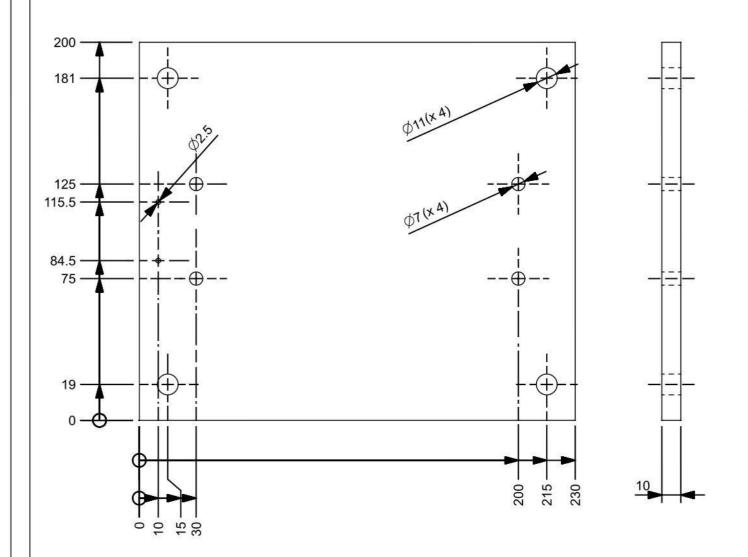
- (1) Set of Metallic Plates CLW/ES/3/0450
- (2) Set of Non-Metallic Plates CLW/ES/3/0451
- (3) Set of Copper Plates CLW/ES/3/0452
- (4) Set of Panel Plates CLW/ES/3/0453

Checked By	Approved By
AEE/SEE/DESIGN	Dy.CEE/ D-II
	·

BASE PLATE[TYPE 14]

IDENT. No. 3EHP330155P0001

Location :- Pre Assly M/R Filter Block



All dimensions are in mm

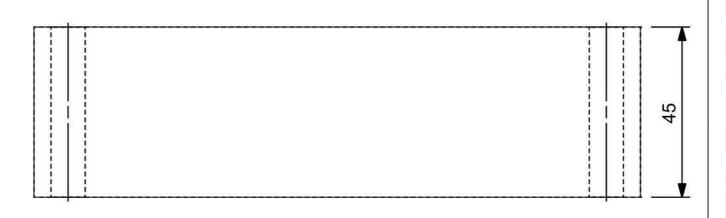
												9	अभिकल्पित DGN		चित्तरंजन रेलइंजन कारखाना
												9	जॉचा व.अ.अ. CHD SSE		CHITTARANJAN LOCOMOTIVE WORKS, INDIA
ा रिवर्त न	प्राधिका	₹			वर्ण	न				-		बादशर	समीक्षित		पदार्थ GLASS FIBRE POLYSTER MATL RESIN AS PER IS: 11246 WT. EACH IN KG
संख्या ALT.NO.	AUTHY			C	ESCRIF	PTION					DAT		स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		विशिष्ट '
न मा. य	ाइ — रुसता का विनिर्देश्य — सीमा मा. मा. : 2102 / व. मा. सं. : 2788 IDL. (LS. UNSPECFIED TOLEARANCE TO IS : 2102 / ISO : 2768							अनुमोदित च.मु.वि.अ. APPROVED DYCEE		वर्णन SET OF NON METALLIC PLATES					
WLUE TO	Roughness D IS:3073 / E1302		बातु—वे ४			. मा. : BOLS 1						3	दिनांक		DESCRIPTION CLW/ES/3/0451/D
दांक ADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	संह N6	सं7 N7	सं8 NB	सं9 N9	सं10 N10	सं11 N11	सं12 N12	DATE रैखिक अनुपात	NTS	आरेखण संख्या
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250	SCALE		DRAWING NO. CLW/ES/3/SK-3/0150/2/C
a µm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	संदर्भ ।	REF.	
चिन्ह YMR0I	7	/ ///	<i>X</i> ,	7	ΧХ	7,	,	, ,,,		7	7	<i>₽</i> +	8	ALT	परिवर्तन संख्या पर्ण 1 OF 1 A

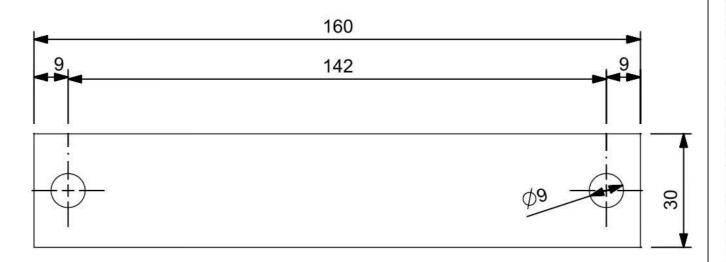
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DISTANCE PLATE [TYPE 16]

IDENT. No. 3EHP431509P0002

Location :- MR, HV Cable

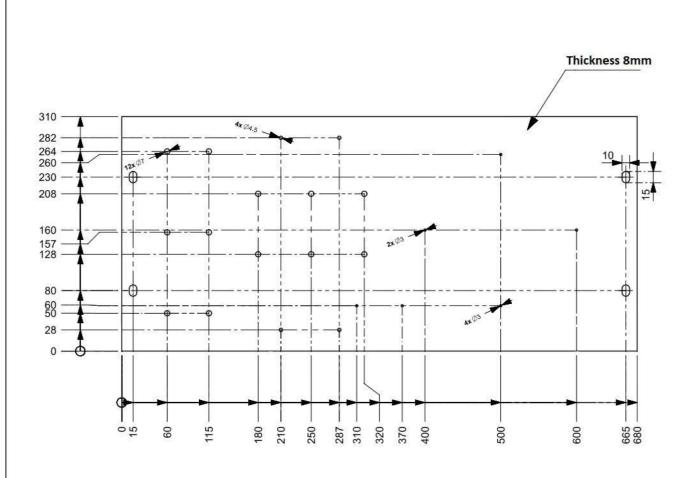




All dimensions are in mm

											9	अभिकल्पित DGN		चित्तरंजन रेलइंजन कारखाना					
- 1		1										-	जॉचा व.अ.अ. CHD SSE		CHITTARANJAN LOCOMOTIVE WORKS, INDIA				
परिवर्तन संख्या ALT.NO.	प्राधिव AUTH	00	वर्णन दिनांडित बाबसर DATED DATED INITIAL								DAT	ED	समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	MATL PVCASPERIS: 6307 WT. EACH IN K					
सतह — मान भा. म अ. मा.	मा. 30 सं. 13	73 /	- 800	PECIFIED	TOLEA	RANCE	TO IS :	2102 /	ISO :	2768	131300	TOL. CLS.	अनुमोदित उ.मु.वि.अ. APPROVED DYCEE		वर्णन SET OF NON METALLIC PLATES				
Surface i Value to ISO									чт. чт. :255 ISO:2553				दिनांक DATE		DESCRIPTION CLW/ES/3/0451/ D				
पदांक GRADE NO.	सं1 N1	₹2 N2	₹13 N3	सं4 N4	सं5 N5	सं 6 N6	सं7 N7	सं 8 NB	सं9 N9	सं10 N10	सं11 N11	सं12 N12	रैखिक अनुपात	NTS	आरेखण संख्या				
Rz	0.000000	0.000000	7 0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250		F1974 82	CLW/ES/3/SK-5/0150/2/C				
Ra µm चिन्ह SYMBOI	0.025	0.05	3500	0.2	0.4	0.8 Z,	1.6	3.2	6.3	12.5	25 7,	50 77/	संदर्भ ।	REF. ALT	प्रिवर्तन संख्या पर्ण 1 0F 1 A4				

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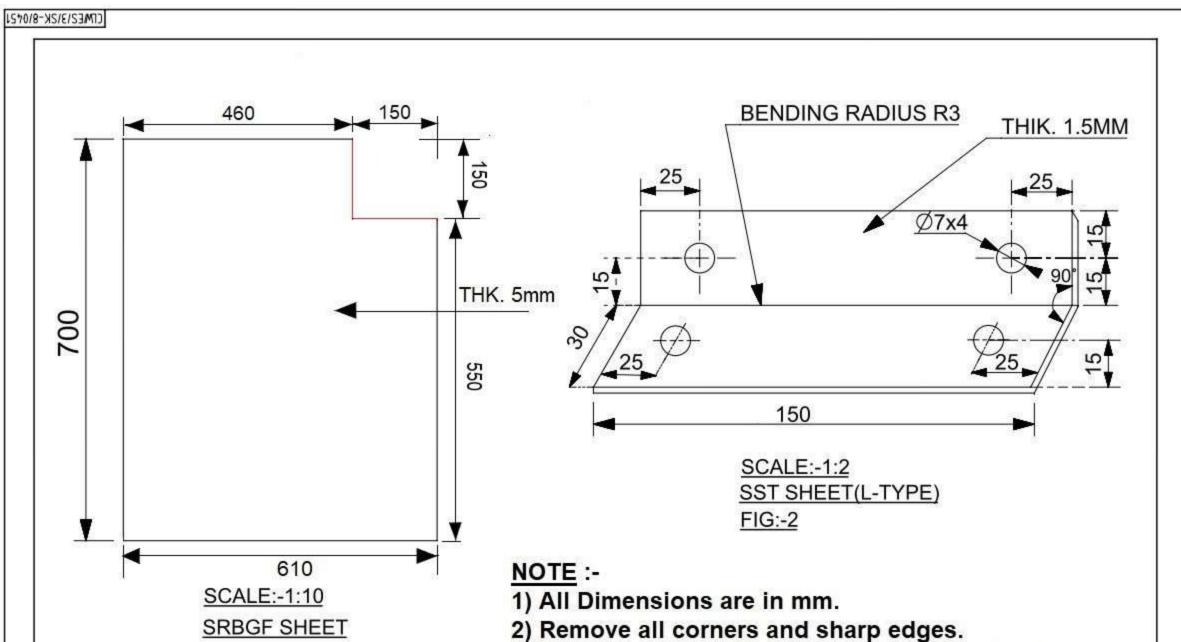
Size- 680x310x8 mm

CIMES/3/2K-107271/C

NOTE :-

- This Drawing is used for preparation of BUR INPUT SNUBBER BUR 1/2(Drg. No.CLW/ES/3/SK-7a/0451/C.
- 2. This Drawing is used for internal purposes during manufacturing of Panel.
- 3. This material is not supplied by the vendor, only material as per drg. no.No.CLW/ES/3/SK-7a/0451/C to be supply
- 4. All dimensions are in mm.

													अभिकल्पित DGN		चित्तरंजन रेलइंजन कारखाना					
		ĺ											जॉचा व.अ.अ. CHD SSE		CHITTARANJAN LOCOMOTIVE WORKS, INDIA पवार्थ Hard Fibre(Equivalent of प्रति भार कि. ग्रा.					
संख्या	प्राधिक। AUTHY		वर्णन दिनांडित बावस DATED DATED INITIAL									TED	समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		MATL HM35) WT. EACH IN KG Record Mathematical Mathematical					
सान सा. 41. 3073 / UNSPECIFIED TOLEARANCE TO IS : 2/02 / ISO : 2768 CLS.						2768 : 2553			अनुमोदित च.मु.वि.अ. APPROVED DYCEE दिनांक	8	वर्णन SET OF NON METALLIC PLATES									
ISO	1302	_		WELDING	r			_	_	_	1.	1.	DATE		DESCRIPTION					
पदांक GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं 6 N6	सं7 N7	MB 418	स9 N9	刊10 N10	刊1	1 सं12 N12	रैखिक अनुपात	NTS	आरेखण संख्या CLW/ES/3/SK-7b/0451/D					
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-10	0 160-250			DRAWING NO.					
Ra µm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	संदर्भ ।	REF.						
चिन्ह SYMBOL	,	у,	8	, ,,,,,,	,	,777,				X n/		1	ALT	परिवर्तन संख्या पण 1 OF 1 A4						



CAPACITOR SEPARATOR FOR FILTER CUBICLE

FIG:-1

SCOPE OF SUPPLY-FIG-1 ONLY

REF. NO.	C&D NO.	PART DRG. NO.	DESCRIPTION	NO./LOCO	MATL	SPECN	WT. EACH IN K.G.
नि र्देश संख्या	लागत एवं वितरण संख्या	अंग <u> आ</u> रेखण संख्या	বর্ণন	मात्रा	पदार्थ	विशिष्टि	प्रति भार कि. ग्रा.
FIG.1			SRBGF SHEET	01	FIBRE GLASS	GR.EP-3 IS:-10192	
FIG.2			SST SHEET (L-TYPE)	02	SST	AISI-304	
FIG.2			M6 HEX. NUT	08			
FIG.2			M6X20 HEX.HD. BOLT	08	SST	AISI-304	
FIG.2			M6 SPRING WASHER	08	CCT	AICL 204	
FIG.2	1	2	M6 PLAIN WASHER	08	10		

3) Firm should emboss/imprint their identification

mark with year of manufacturing etc. on the material.

अभिकल्पित चित्तरंजन रेलइंजन कारखाना DGN CHITTARANJAN LOCOMOTIVE WORKS, INDIA जॉचा व.अ.अ. CHD SSE प्रति भार कि. ग्रा. पदार्थ' समीक्षित MATL परिवर्तन प्राधिकार WT. EACH IN KG दिनांकित बादसर वर्णन स.वि.अ. / व.वि.अ. DATED विशिष्टि ' संख्या DESCRIPTION REVIEWED AEE / SEE AUTHY ALT.NO. INITIAL SPECN सतह - रुसता का अनिर्दिष्ट सद्य - सीमा मा. मा. : 2102 / इ. मा. सं. : 2788 TOL. अनुमोदित उ.मु.वि.अ. मान मा. मा. 3073 CLS. UNSPECIFIED TOLEARANCE TO IS: 2102 / ISO: 2768 वर्णन APPROVED DYCEE अ. मा. सं. 1302 SET OF NON METALLIC PLATES SURFACE ROUGHNESS बातू-वेल्डन चिन्ह भा. मा. : 813 / स. मा. सं. :2553 दिनांक VALUE TO 15:3073 / DESCRIPTION WELDING SYMBOLS TO IS:813 / ISO:2553 DATE सं8 सं9 सं10 सं11 सं12 सं1 सं4 सं5 सं2 सं3 रैखिक अनुपात आरेखण संख्या GRADE NO N9 N1 N2 N3 N4 N5 N6 N7 NB N10 N11 N12 NTS CLW/ES/3/SK-8/0451/D SCALE 16-25 30-40 50-63 160-250 0.16-0.3 0.5-0.7 0.9-1.1 1.5-2.0 2.5-3.8 5.0-6.3 9.0-12 DRAWING NO. **संदर्भ** / REF. 0.05 0.2 0.4 0.8 1.6 3.2 6.3 12.5 50 0.025 0.1 25 Ra um परिवर्तन संख्या पर्ण चिन्ह SYMBOL 1 OF 1 ALT. -X \mathcal{M} \mathcal{M} \mathcal{M} A SHEET ALTERATION, NO.