

DRAFT

Enclosure:

DRG. NOS. Fig.1 to Fig. 31 excluding Fig.30

**TECHNICAL SPECIFICATION
FOR SET OF RATING PLATES FOR 3-PHASE
ELECTRIC LOCOMOTIVES**

Specification No: CLW/ES/3/0252/J

ISSUE DATE: - 20.04.2002

ISSUED BY:

DY. CHIEF ELECTRICAL ENGINEER/D-II

CHITTARANJAN LOCOMOTIVE WORKS

P.O : CHITTARANJAN – 713331

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

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ALTERATION RECORD SHEET

Amend. No.	Date of amendment	Page No.	ALT.	Reason	Authority
1	12.02.2002		B	Specification totally revised	S/d
2	30.04.2003		C	12 no. items added in Page No. 25 due to modification. Item Sl. No. 1/15 in Page No. 5 deleted. Item Sl. No. 2/14 in Page No. 6 deleted. Qty./Loco increased in Sl. No. 7/1, 7/2, 7/3 in Page No 10, 9/1 in Page 11 and 17/2, 17/3, 17/4, 17/5 in Page No. 12. Dimension of Fig. No. 14 changed.	S/d
3		25 & 6	D	7 no. new items added in Page No. 25 due to modification. Correction has been made in Sl. No. 39 at Page No. 6. One new item added at Sl. No. 49 at Page No. 6.	S/d
4	15.03.2008	26	E	Graduation plate of Master Controller has been included in Sheet No. 26 of this specification.	S/d
5	28.06.2011	27	F	Set of Rating Plate of switch for cab AC has been included at Sheet No. 27.	S/d
6	25.02.2014	28	G	New Rating Plates has been added for SB-1 & SB-2, HB-2 panel at Page No. 28 as per Dy.CEE/EL Letter No. ELE/T/5 dtd. 14.08.2012.	S/d
7	15.07.2015	28	H	New Rating Plates have been added for SB-1 panel (Sl. No. 68, 69), SB-2 panel (Sl. No. 60, 61) & HB-2 panel (Sl. No. 58, 59, 60) at Page No. 28 as per Dy.CEE/EL Letter No. ELE/T/5 dtd. 10.07.2015.	S/d
8	24.11.2022	5, 6, 11, 26, 29	I	(i) Additional Rating Plate has been added for SB-1 panel (Sl. No. 70, 71, 72, 73, 74), SB-2 panel (Sl. No. 62, 63) at Sheet No. 29. (ii) Rating Plate of HB-1 panel (Sl. No. 8, 13, 14 at Page No. 5) and HB-2 panel (Sl. No. 3, 6, 7 at Page No. 6), Graduation Plate for driver desk (Sl. No. 13 at Page No. 11) and Fig. No. 30 at Page No. 26 has been deleted.	S/d
9		9, 11, 27	J	(i) Fig. No.27 & Fig. No.29 has been modified. (ii) Additional Rating Plate has been added for SB-1 panel (Sl. No. 75 to 83) and SB-2 panel (Sl. No.64, 65, 66 & 67).	

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

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TECHNICAL SPECIFICATION FOR RATING PLATE FOR 3-PHASE ELECTRIC LOCOMOTIVES

1. **SCOPE:-**

This specification covers the manufacture and supplies of SET OF RATING PLATE of 3-phase Electric Locomotives.

2. **SERVICE CONDITIONS:-**

Climatic & Environmental Condition:-

Maximum Atmospheric Temperature : +70°C (in Sun) & +50°C (in Shade)

Ambient Temperature (operating) : -20°.....+70°C

Ambient Temperature (Storage) : -30°....+80°C

Normal Humidity : 60%

Maximum Humidity : 100% saturation during rainy season

Altitude : 160 m.a.s.l

Rain Fall : 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 area in humid and salty laden atmosphere.

Vibration : The equipment sub-system and their mounting arrangement will be designed to withstand vibration and shock encountered in service as specified in correspondence unless otherwise prescribed.


3. **STANDARDS:-**

IS-1868 and IS-6651 and any other relevant International & Indian Standards shall apply with respect to all materials used in the manufacture of RATING PLATE.

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4. SCOPE OF SUPPLY


(1). Rating Plate for HB1 (3EHP431080R0001)

Sl. No.	ABB Identification No.	Qty./ Loco	Matter to be Witten	Fig. No.
1	3EHP431080P0001	1	HB1	1
2	3EHP431080P0101	1	52.3/4	2
3	3EHP431080P0102	1	52.3/5	2
4	3EHP431080P0103	1	52/4	2
5	3EHP431080P0104	1	52/5	2
6	3EHP431080P0105	1	89.5	2
7	3EHP431080P0106	1	67	2
8	3EHP431080P0108	1	90.41	2
9	3EHP431080P0109	1	90.42	2
10	3EHP431080P0110	1	52.A/4	2
11	3EHP431080P0111	1	52.A/5	2
12	3EHP431080P0301	1	XK 32A:01	3
13	3EHP431080P0302	1	XK 32:02	3
14	3EHP431080P0303	1	XK 32A:03	3
15	3EHP431080P0304	1	XK 32A:04	3
16	3EHP431080P0305	1	XK 32A:05	3
17	3EHP431080P0306	1	XK 32A:06	3
18	3EHP431080P0307	1	XK 32E	3
19	3EHP431080P0308	1	EX 32D	3
20	3EHP431080P0309	1	XK 32B	3
21	3EHP431080P0310	1	XK 32F	3
22	3EHP431080P0311	1	XB 32A	3
23	3EHP431080P0312	1	XK 32S	3
24	3EHP431080P0313	1	XK 32C:01	3
25	3EHP431080P0314	1	XK 32C:02	3
26	3EHP431080P0315	1	XK 32P:01	3
27	3EHP431080P0316	1	XK 32P:02	3
28	3EHP431080P0317	1	XH32A	3
29	3EHP431080P0318	1		3
30	3EHP431080P0319	1	47.5/1 47.5/2	3
31	3EHP431080P0501	1	41 415V/110V	4
32	3EHP431080P0502	1	47.1/1 Main Compressor	4
33	3EHP431080P0503	1	47.2/1 Main Compr. 47.2A/1	4
34	3EHP431080P0504	1	53.1/1 Motor Blower	4
35	3EHP431080P0505	1	54.1/1 M/C room Blower	4
36	3EHP431080P0506	1	55.1/1 Scavenge Blower TM	4
37	3EHP431080P0507	1	56.1/1 Scavenge Blower MR	4
38	3EHP431080P0508	1	59.1/1 Vent. Oil Cooler	4
39	3EHP431080P0509	1	62.1/1 Pump Transformer	4

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40	3EHP431080P0510	1	63.1/1 Pump Converter	4
41	3EHP431080P0511	1	69.61 Cab Ventilation	4
42	3EHP431080P0512	1	69.62 Cab Heater	4
43	3EHP431080P0513	1	69.71 Crew Fan	4
44	13EHP431080P0514	1	69.62 Cab Heater	4
45		1	47.2/1 Main Compr.	4
46				

(2) Rating Plate for HB2 (3EHP431104R0001)

Sl. No.	ABB Identification No.	Qty./Lo co	Matter to be Witten	Fig. No.
1	3EHP431104P0001	1	HB2	1
2	3EHP431104P0101	1	89.2	2
3	3EHP431104P0103	1	90.3/1	2
4	3EHP431104P0104	1	90.3/2	2
5		1	52.6/1	2
6		1	52.6/2	2
7		1	52.4/1	2
8		1	52.4/2	2
9		1	52.5/1	2
10		1	52.5/2	2
11	3EHP431104P0301	1	42.3/1	3
12	3EHP431104P0302	1	42.3/2	3
13	3EHP431104P0303	1	51103.1 Off	3
14	3EHP431104P0304	1	51117.1 Off	3
15	3EHP431104P0305	1	XK 67A:01	3
16	3EHP431104P0306	1	XK 67A:02	3
17	3EHP431104P0307	1	XK 67A:03	3
18	3EHP431104P0308	1	XK 67E:01	3
19	3EHP431104P0309	1	XK 67E:02	3
20	3EHP431104P0310	1	XK 67B	3
21	3EHP431104P0312	1	XK 67S	3
22	3EHP431104P0313	1	XK 67D	3
23	3EHP431104P0315	1	XK 67A:04	3
24	3EHP431104P0316	1	XB 67A	3
25	3EHP431104P0317	1	XH 67A	3
26	3EHP431104P0319	1	XK 67C:01	3
27	3EHP431104P0320	1	XK 67C:02	3
28	3EHP431104P0321	1	67P:01	
29	3EHP431104P0322	1	XK 67P:02	3
30	3EHP431104P0323	1	XK 67A:05	3
31	3EHP431104P0324	1	XK 67A:06	3
32	3EHP431104P0325	1		3
33	3EHP431104P0326	1	47.5/4, 47.5/3	3
34	3EHP431104P0501	1	47.1/2 Main Compressor	4

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35	3EHP431104P0502	1	47.2/2 Main Compressor	4
36	3EHP431104P0503	1	53.1/2 Motor Blower	4
37	3EHP431104P0504	1	54.1/2 M.R. Blower	4
38	3EHP431104P0505	1	55.1/2 Scavenge Blower TM	4
39	3EHP431104P0506	1	56.1/2 Scavenge Blower MR	4
40	3EHP431104P0507	1	59.1/2 Vent Oil Cooler	4
41	3EHP431104P0508	1	62.1/2 Pump Transformer	4
42	3EHP431104P0509	1	63.1/2 Pump Converter	4
43		1	XK 100:01	3
44		1	XK 100:02	3
45		1	XK 67: AC Cab-1	3
47		1	XK 67:AC Cab-2	3
48		1	100 Battery Charger	4
49		1	Cab-1 Pacco Switch	4
41		1	Cab-2 Pacco Switch	4
42		1	AC Power Supply	4
43		1	Contactor AC Power Supply	4
44		1	052.4A/1	2
45		1	052.4A/2	2
46		1	Circuit Breaker for Cab C	6
47		1	Power Supply to Cab AC	6
48		1	MCB 100A for Battery Charger	6

(3) Rating Plate for SB1 (3EHP431245P0001)

Sl. No.	ABB Identification No.	Qty./Lo co	Matter to be Witten	Fig. No.
1	3EHP431245P0001	1	SB1	1
2	3EHP431245P0101	1	78.1	2
3	3EHP431245P0102	1	89.7	2
4	3EHP431245P0103	1	90.7/1	2
5	3EHP431245P0104	1	90.7/2	2
6	3EHP431245P0105	1	118.4/1	2
7	3EHP431245P0106	1	118.5/1	2
8	3EHP431245P0107	1	123.1/1	2
9	3EHP431245P0108	1	123/1	2
10	3EHP431245P0109	1	123/3	2
11	3EHP431245P0110	1	123/5	2
12	3EHP431245P0111	1	123/7	2
13	3EHP431245P0112	1	126	2
14	3EHP431245P0113	1	126.5	2
15	3EHP431245P0114	1	126.5A	2
16	3EHP431245P0115	1	126.7/1	2
17	3EHP431245P0116	1	126.7A/1	2
18	3EHP431245P0117	1	136.3	2

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19	3EHP431245P0118	1	136.4	2
20	3EHP431245P0119	1	136.3A	2
21	3EHP431245P0120	1	136.4A	2
22	3EHP431245P0123	1	218	2
23	3EHP431245P0124	1	381.7	2
24	3EHP431245P0125	1	381.71	2
25	3EHP431245P0126	1	411	2
26	3EHP431245P0127	1	211.1/1	2
27		1	338/1	2
28		1	123/8	2
29		1	127.22	2
30	3EHP431245P0311	1	78	3
31	3EHP431245P0312	1	86	3
32	3EHP431245P0313	1	181 Configuration	3
33	3EHP431245P0314	1	179 Simulation	3
34	3EHP431245P0316	1	XK 22V:01	3
35	3EHP431245P0317	1	XK 22V:02	3
36	3EHP431245P0318	1	XK 22D:02	3
37	3EHP431245P0319	1	XK 22A:01	3
38	3EHP431245P0320	1	XK 22A:02	3
39	3EHP431245P0321	1	XK 22H	3
40	3EHP431245P0322	1	XK 22F	
41	3EHP431245P0323	1	XK 22R	3
42	3EHP431245P0324	1	XK 22D:01	3
43	3EHP431245P0325	1	XK 22D:03	3
44	3EHP431245P0326	1	XK 22U:01	3
45	3EHP431245P0327	1	XK 22U:02	3
46	3EHP431245P0328	1	XK 22P:01	3
47	3EHP431245P0329	1	XK 22P:02	3
48	3EHP431245P0330	1	XK 22P:03	3
49	3EHP431245P0331	1	XK 22P:04	3
50	3EHP431245P0332	1	XK 22P:05	3
51	3EHP431245P0333	1	XK 22V:03	3
52	3EHP431245P0701	1	127.12 Panto/VCB control	6
53	3EHP431245P0702	1	127/1/1 Electronics Traction Converter-1	6
54	3EHP431245P0703	1	127.11/1 Power Supply Gate Units	6
55	3EHP431245P0704	1	127.2/1 Monitoring	6
56	3EHP431245P0705	1	127.3/1 Driver's Cab	6
57	3EHP431245P0706	1	127.22/1 Electronics Aux. Converter-1	6
58	3EHP431245P0707	1	127.9/1 Central Electronics-1	6
59	3EHP431245P0708	1	127.9/2 Central Electronics-2	6
60	3EHP431245P0709	1	127.91/1 24V/48V Power Supply	6
61	3EHP431245P0710	1	310.1/1 Lighting Front	6
62	3EHP431245P0801	1	152 Failure Mode Operation	7

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63	3EHP431245P0802	1	154 Bogie Cut Out	7
64	3EHP431245P0803	1	160 Configuration	7
65	3EHP431245P0804	1	237.1 Vigilance Device Cut Off	7
66		1	127.25/1 Power Supply Active Speed Sensor	6
67		1	PT Fuse	3
68		1	MCB for Speed Sensor 127.25/1	6
69		1	Spare PT Fuse	3

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Written	Fig. No.	Remarks
70		1	XK22HL-1	3	WAP-5 & WAP-7
71		1	Reset Relay	3	WAG-9 & WAP-7/WAP-5
72		1	New Timer	2	WAP-5
73		1	Reset Switch	3	WAG-9 & WAP-7/WAP-5
74		1	90.7/3	2	WAG-9 & WAP-7/WAP-5
75		1	Rotary Switch ZCAB	3	WAG-9
76		1	Reset Switch Slave	3	WAG-9
77		1	Reset Switch Master	3	WAG-9
78		1	Timer(PBIR)	3	WAG-9
79		1	Timer (MUIR)	3	WAG-9
80		1	VS DIODE 1	2	WAG-9
81		1	VS DIODE 2	2	WAG-9
82		1	VS DIODE 3	2	WAG-9
83		1	127.25/1	6	For Locomotive fitted with water closet

(4) Rating Plate for SB2 (3EHP431246P0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431246P0001	1	SB2	1
2	3EHP431246P0101	1	48.2	2
3	3EHP431246P0102	1	110	2
4	3EHP431246P0103	1	112.1	2
5	3EHP431246P0104	1	123.1/2	2
6	3EHP431246P0105	1	123/2	2
7	3EHP431246P0106	1	123/4	2
8	3EHP431246P0107	1	123/6	2

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9	3EHP431246P0108	1	123/8	2
10	3EHP431246P0109	1	126.6	2
11	3EHP431246P0110	1	126.7/2	2
12	3EHP431246P0111	1	126.7A/2	2
13	3EHP431246P0112	1	130.1	2
14	3EHP431246P0113	1	130.1A	2
15	3EHP431246P0114	1	211	2
16	3EHP431246P0115	1	211.A	2
17	3EHP431246P0116	1	212	2
18	3EHP431246P0117	1	300.3/1	2
19	3EHP431246P0118	1	300.3/2	2
20	3EHP431246P0119	1	118.4/2	2
21	3EHP431246P0120	1	118.5/2	2
22	3EHP431246P0121	1	412	2
23	3EHP431246P0122	1	211.1/2	2
24		1	338/2	2
25		1	123/9	2
26	3EHP431246P0321	1	XK 77V:01	3
27	3EHP431246P0322	1	XK 77V:02	3
28	3EHP431246P0323	1	XK 77D	3
29	3EHP431246P0324	1	XK 77B	3
30	3EHP431246P0325	1	XK 77H	3
31	3EHP431246P0326	1	XK 77R	3
32	3EHP431246P0327	1	XK 77A:01	3
33	3EHP431246P0328	1	XK 77A:02	3
34	3EHP431246P0329	1	XK 77P:01	3
35	3EHP431246P0331	1	XK 77C:01	3
36	3EHP431246P0332	1	XK 77C:02	3
37	3EHP431246P0333	1	XK 77X	3
38	3EHP431246P0334	1	XK 77Z	3
39	3EHP431246P0335	1	XK 77V:03	3
40	3EHP431246P0701	1	48.1 Aux. Compressor	6
41	3EHP431246P0702	1	127.15 Vigilance Control	6
42	3EHP431246P0703	1	127.81 Commissioning-1	6
43	3EHP431246P0704	1	127.82 Commissioning-2	6
44	3EHP431246P0705	1	127.3/2 Driver's Cab	6
45	3EHP431246P0706	1	127.91/2 24V/48V Power Supply	6
46	3EHP431246P0707	1	127.1/2 Electronics Traction Converter-2	6
47	3EHP431246P0708	1	127.11/2 Power Supply Gate Units	6
48	3EHP431246P0709	1	127.2/2 Monitoring	6
49	3EHP431246P0710	1	127.22/2 Electronics Aux. Converter-2	6
50	3EHP431246P0711	1	127.22/3 Electronics Aux. Converter-3	6
51	3EHP431246P0712	1	127.7 Pneumatic Panel	6

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
52	3EHP431246P0713	1	127.9/3 Central Electronics-2	6
53	3EHP431246P0714	1	127.9/4 Central Electronics-2	6
54	3EHP431246P0715	1	127.92 Memotel Speedometer	6
55	3EHP431246P0716	1	310.1/2 Lighting Front	6
56	3EHP431246P0717	1	310.4 Lighting Machine Room	6
57	3EHP431246P0718	1	310.7 Marker Lights	6
58		1	127.25/2 Power Supply Active Speed Sensor	6
59		1	128.1/2 Power Supply Air Dryer	6
60		1	MCB for Speed Sensor 127.25/2	6
61		1	MCB for Air Dryer 128.2/2	6

Sl. No.	ABB Identification No.	Qty./ Loco	Matter to be Written	Fig. No.	Remarks
62		1	XK77HL-2	3	WAP-5 & WAP-7
63		1	MCB for HL No. 129/1	3	WAP-5 & WAP-7
64		1	VSHOG	2	WAP-5 /WAP-7
65		1	MCB TMDDS	3	WAP-7 & WAG-9
66		1	VSTM	3	WAP-7 & WAG-9
67		1	QEMS	3	WAP-7 & WAG-9


(5) Rating Plate for Filter Cubicle (3EHP431071R2)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431071P0001	1	FB	1
2	3EHP431071P0101	1	6.2/1	2
3	3EHP431071P0102	1	6.2/2	2
4	3EHP431071P0103	1	6.21	2
5	3EHP431071P0104	1	8.1	2
6	3EHP431071P0105	1	8.2	2
7	3EHP431071P0106	1	8.4	2
8	3EHP431071P0107	1	8.41	2
9	3EHP431071P0108	1	8.42	2
10	3EHP431071P0109	1	8.5/1	2
11	3EHP431071P0110	1	8.5/2	2
12	3EHP431071P0118	1	89.6	2
13	3EHP431071P0119	1	8.61/1	2
14	3EHP431071P0120	1	8.61/2	2
15	3EHP431071P0121	1	8.62/1	2

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16	3EHP431071P0122	1	8.62/2	2
17	3EHP431071P0301	1	XS37A	3
18	3EHP431071P0303	1	XE37A:01	3
19	3EHP431071P0304	1	XE37A:02	3
20	3EHP431071P0307	1	XE37A:05	3
21	3EHP431071P0308	1	XE37A:06	3
22	3EHP431071P0309	1	XK37A	3
23	3EHP431071P0310	3		3

(6) Rating Plate for Cubicle “F” (3EHP431126R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431126P0001	1	F	1
2	3EHP431126P0301	1	224.2	3
3	3EHP431126P0302	2	XF**A:01	3
4	3EHP431126P0303	2	XF**A:02	3
5	3EHP431126P0304	2	XF**A:03	3
6	3EHP431126P0305	2	XF**A:04	3
7	3EHP431126P0306	2	XF**A:05	3
8	3EHP431126P0307	2	XF**A:06	3
9	3EHP431126P0308	2	332.3	3
10	3EHP431126P0309	2	XK**A:01	3
11	3EHP431126P0310	2	XK**A:02	3
12	3EHP431126P0311	2	XK**B	3
13	3EHP431126P0312	2		3

(7) Rating Plate for Driver Desk (3EHP431386R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431386P0101	2	HORN	4
2	3EHP431386P0102	2	HI	4
3	3EHP431386P0103	2	LO	4
4	3EHP431386P0301	2	DIRECT BRAKE	3
5	3EHP431386P0302	2	AUTO BRAKE	3
6	3EHP431386P0303	2	REVERSER	3
7	3EHP431386P0304	2	THROTTLE	3
8	3EHP431386P0501	2	ASST. DRIVERS EM. BRAKE VALVE	4
9	3EHP431386P0601	1	SPM-1 94.3	11
10	3EHP431386P0602	1	SPM-2 94.2	11
11	3EHP431386P0603	2	HRA 65.6	11
12	3EHP431386P0604	2	WIPER	11

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(8) Rating Plate for TFP. OCLR (3EHP431139R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431139P0301	1	210.5A/1	3
2	3EHP431139P0302	1	210.5A/2	3
3	3EHP431139P0303	1	214/1	3
4	3EHP431139P0304	1	214/2	3
5	3EHP431139P0305	1	214.A/1	3
6	3EHP431139P0306	1	214.A/2	3
7	3EHP431139P0307	1	214.B/1	3
8	3EHP431139P0308	1	214.B/2	3
9	3EHP431139P0309	1	214.C/1	3
10	3EHP431139P0310	1	214.C/2	3

(9) Rating Plate for CA LOOMS (3EHP431096R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431096P0301	2	XK**R	3
2	3EHP431096P0302	1	XK 42C	3
3	3EHP431096P0303	1	XK 42R	3

(10) Rating Plates – Type-8 (3EHP431140R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431140P0301	1	63/1	3
2	3EHP431140P0302	1	59.A/1	3

(11) Rating Plates – Type-9 (3EHP431140R0002)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431140P0303	1	63/1	3
2	3EHP431140P0304	1	59.A/2	3

(12) Rating Plate for Speed and Temp. Sensor for Motor (3EHP431235R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431235P0101	6	93.2A	2
2	3EHP431235P0102	6	93.2B	2
3	3EHP431235P0103	6	98.A	2

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(13) Rating Plate for Scavenge Blower (3EHP431489R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431489P0601	1	56.5/1	12
2	3EHP431489P0602	1	56.5/2	12

(14) Rating Plate Roof Side-1(3EHP431064R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431064P0301	1	327/1	20
2	3EHP431064P0302	1	334.2/1	20
3	3EHP431064P0303	1	XK32R	20

(15) Rating Plates, Mid Roof - (3EHP431065R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431065P0301	1	74.2	20
2	3EHP431065P0302	1	XK42C	20
3	3EHP431065P0303	1	XK42R	20
4	3EHP431065P0304	1	XK42A	20
5	3EHP431065P0305	1	XK5.A	20
6	3EHP431065P0306	1	6.11	20


(16) Rating Plates, Roof, S.2 (3EHP431066R0001)

Sl. No.	ABB Identification No.	Qty./Loco	Matter to be Witten	Fig. No.
1	3EHP431066P0301	1	327/2	20
2	3EHP431066P0302	1	334.2/2	20
3	3EHP431066P0303	1	XK 62R	20

(17) Rating Plate for Other Places:

Sl. No.	Description	ABB Identification No.	Qty./Loco	Matter to be Written	Fig. No.
1	RATING PLATE, INSULATOR	3EHP431085R0001	2	Cab No.	5
2	RATING PLATES INSCRIBED (TYPE-1)	3EHP431088P0301	2	XK**A	3
3	RATING PLATES INSCRIBED (TYPE-2)	3EHP431088P0302	2	XE**A:01 XE**A:02	3
4	RATING PLATES INSCRIBED (TYPE-3)	3EHP431088P0311	2	XK**C	3
5	RATING PLATES INSCRIBED (TYPE-4)	3EHP431088P0321	2	XK**D	3
6	RATING PLATES, UNDERFRAME	3EHP431286P0701	2	Oil Filling and Out Low	6

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7	RATING PLATE VIGILANCE	3EHP431349P0001	2	235 Vigilance	8
8	RATING PLATE SANDING	3EHP431349P0002	2	192.1 Sanding	9
9	RATING PLATE PVEF	3EHP431349P0003	2	262 PVEF	10
10	RATING PLATE I/O	3EHP431490R0001	2	I/O	13
11	RATING PLATE (TYPE-5)	3EHP431552P0001	1	Given in fig.	15
12	L-PLATE	3EHP470183P0001	1	Given in fig.	24
13	RATING PLALTE (TYPE-6)	3EHP470183P0002	1	Given in fig.	21
14	RATING PLATE (TYPE-7)	3EHP470183P0003	1	Given in fig.	22
15	RATING LATE (EARTHING)	HBTA475668P0019	1		26
16	RATING PLATE, 18 X 52	HZN452004P8004	1	Given in fig.	16
17	RATING PLATE BARE 34 MLAL	NBT200176P0024	2	Given in fig.	23
18	RATING PLALTE BARE "42 MLAL"	NBT200176P0032	1	Given in fig.	24
19	RATING PLALTE BARE "72 MLAL"	NBT200176P0062	1	Given in fig.	17
20	RATING PLARTE BARE "73 MLAL"	NBT200176P0063	1	Given in fig.	18
21	BARE LABLE "75 MLAL"	NBT200176P0065	1	Given in fig.	19
22	RATING PLATE, EARTH 12 PC FOR SB-1/2	NBT500349P0006	4	Given in fig.	25
23	RATING PLATE FOR HB-1/2, SB-1/2 AND FILTER CUBICLE		5	Given in fig.	27
24	RATING PLATE FOR CUBICLE - F		2	Given in fig.	28
25	RATING PLATE FOR PANEL A, C, D		6	Given in fig.	29

5. TECHNICAL REQUIREMENT

Aluminum anodized as per IS-1868 & 6651.

6. SUBMISSION OF TENDER QUOTATION:-

- 6.1 The Tenderer shall give sufficient information to prove that his factory has adequate facilities and capacity to manufacture the SET OF RATING PLATE to meet fully the technical requirements of the specification and quality of materials and workmanship.
- 6.2 Quotation shall not be considered complete unless all information is furnished and are therefore liable to be rejected.
- 6.3 Detailed drawings of the SET OF RATING PLATE should be submitted for approval of purchaser.
- 6.4 Full Technical documents and drawings to be furnished by the supplier as part of the contract.

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7. APPROVAL OF SAMPLE:-

- 7.1 The supplied shall make available at least two prototype of the equipment as per the standards proposed to be supplied by him for inspection and tests at his works and advise the Dy. Chief Electrical Engineer/D, Chittaranjan and Controller of Stores, Calcutta as and when he is ready with the prototype and necessary testing and measuring apparatus and facilities for carrying out the tests.
- 7.2 After the above tests if it is considered necessary by the Dy. CEE/D-II authorized representative to carry out any further tests or trials of the prototype at Chittaranjan, the Supplier will arrange for the same by the quickest means.
- 7.3 The Supplier shall not offer equipments of series production to the inspector authorized under the contract until the prototype has been finally approved. The Supplier shall provide all facilities to the inspecting officer at his works, to inspect and test the equipment.

8. TESTS:-

Type test and routine test shall be carried out according to the IS-1868, IS-6651.

9. TECHNICAL DOCUMENTS TO BE SUPPLIED BY THE SUPPLIER:-

- i) Type test reports
- ii) Routine test reports along with each set
- iii) Maintenance Manual
- iv) Detailed drawings

10. QUANTITY/LOCO:-

As per table given in "scope of supply".

11. LABELLING/MARKING:-

Products should be marked with the following:-

- i) Type nos. of each product should be punched for identification.
- ii) Month & Year of manufacture.
- iii) Name of manufacturer with trademark, Code No. & Batch No.

12. HARDWARE:-

Hardware are to be used should be any of the following make.

- a) Un-bravo (Precision Fasteners)
- b) Laxmi Precisions (LPS)
- c) SUNDARAM Fastners (TVS)
- d) All spring washers of Forbes Gokak Limited make, Mumbai only.

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13. QUALITY ASSURANCE AS PER ISO 9000.

14. REFERENCE:-

All the dimensions are given in this specification are in mm.

15. Rating Plate Required For Modification

Sl. No.	Description	Location.	Qty./ Loco	Matter to be Written	Fig. No.
1	RATING PLATE FOR HB1	HB1	1	XB 32B:03	3
2	RATING PLATE FOR HB2	HB2	1	XB 67B:03	3
3	RATING PLATE FOR SB1	SB1	1	Simulation Mode	13
4	RATING PLATE FOR SB1	SB1	1	XF22S:01	3
5	RATING PLATE FOR SB1	SB1	1	XF22S:02	3
6	RATING PLATE FOR SB1	Sb1	1	Xf22s:03	3
7	RATING PLATE FOR SB1	SB1	1	XB22S	3
8	RATING PLATE FOR SB2	SB2	1	Aux. Contactor 127.24	6
9	RATING PLATE FOR SB2	SB2	1	XF77S:01	3
10	RATING PLATE FOR SB2	SB2	1	XF77S:02	3
11	RATING PLATE FOR SB2	Sb2	1	XF77S:03:	3
12	RATING PLATE FOR SB2	SB2	1	XB77S	3
13	RATING PLATE FOR SB1	SB1	1	XH22S	3
14	RATING PLATE FOR SB2	SB2	1	XH77S	3
15	RATING PLATE FOR HB2	HB2	1	52.5A/1	3
16	RATING PLATE FOR HB2	HB2	1	52.5A/2	3
17	RATING PLATE FOR HB2	HB2	1	47.2A/1	3
18	RATING PLATE FOR HB2	HB2	1	47.2A/2	3
19	RATING PLATE INSCRIBED		1	XE**01 XE**02	3

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2 sign/line

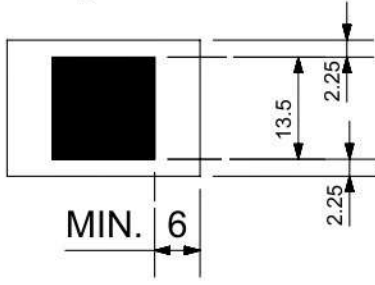


FIG. 1

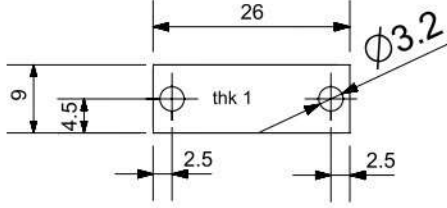
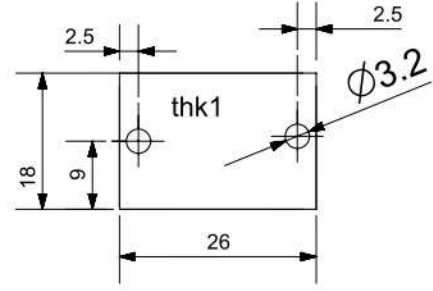


FIG. 2

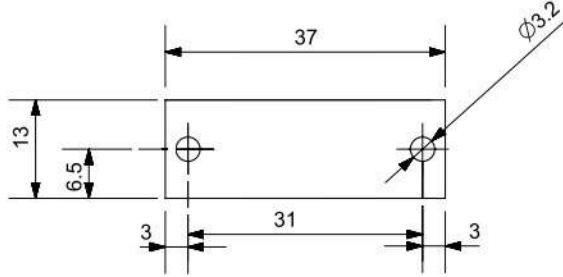
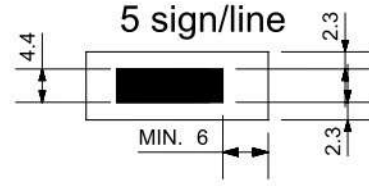
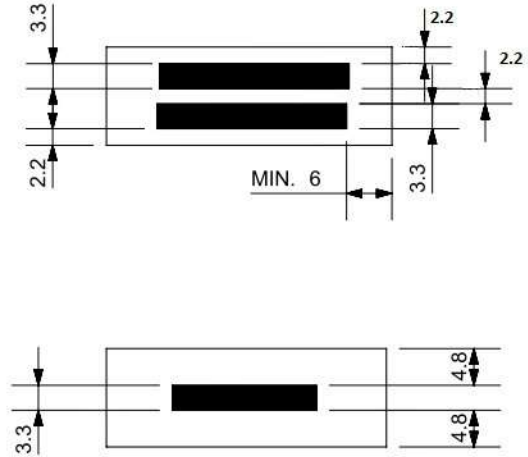


FIG. 3



अभिकल्पित DGN												चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
जोधा व.अ.अ. CHD SSE												प्रति भार कि. ग्रा. WT. EACH IN KG	
परिवर्तन संख्या ALT.NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION								दिनांकित बाबत DATED INITIAL	समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	अनुमोदित स.मु.वि.अ. APPROVED DYCEE	विवरण SPECN
सतह - रूखाता का मान वा. मा. 3073 / अ. मा. सं. 1302		अनिर्दिष्ट सतह - सीमा वा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768								TOL. CLS.	वर्णन DESCRIPTION		
सतह - रूखाता का मान वा. मा. 3073 / अ. मा. सं. 1302		धातु-वेल्डिंग चिह्न वा. मा. : 813 / अ. मा. सं. : 2563 WELDING SYMBOLS TO IS:813 / ISO:2553									वर्णन DESCRIPTION		
पदार्थ GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	वर्णन DESCRIPTION
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.0	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	100-250	वर्णन DESCRIPTION
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	वर्णन DESCRIPTION
चिह्न SYMBOL													वर्णन DESCRIPTION
रैखिक अनुपात SCALE												N.T.S.	आरेखण संख्या DRAWING NO.
संदर्भ / REF.												परिवर्तन संख्या ALTERATION. NO.	पृष्ठ SHEET
ALT.-												परिवर्तन संख्या ALTERATION. NO.	पृष्ठ SHEET
CLW/ES/3/0252/J												पृष्ठ SHEET	
1 OF 1												A4	

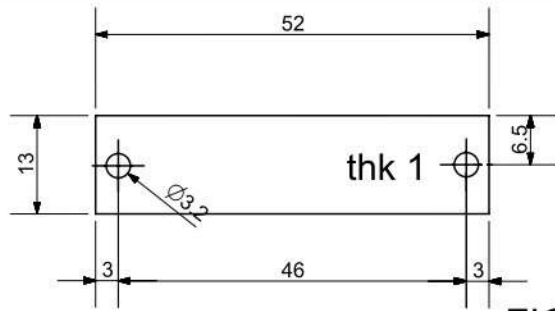


FIG. 4

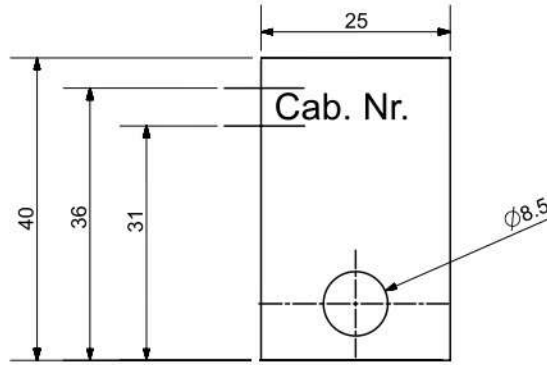
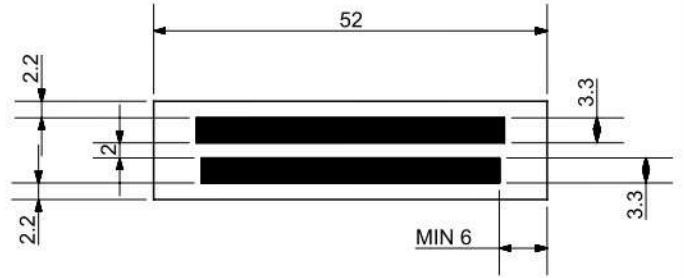


FIG. 5

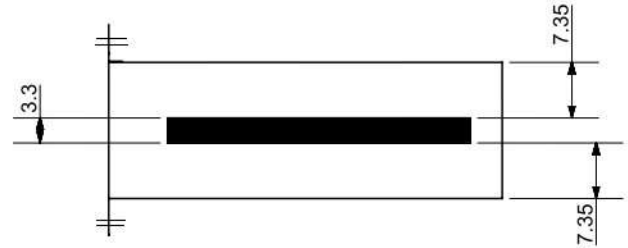
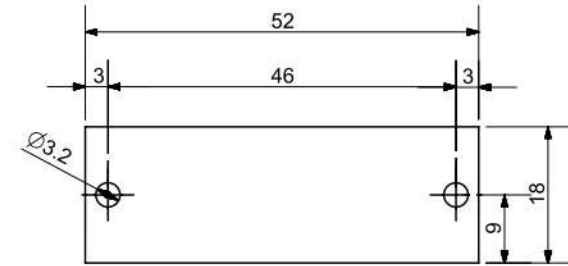
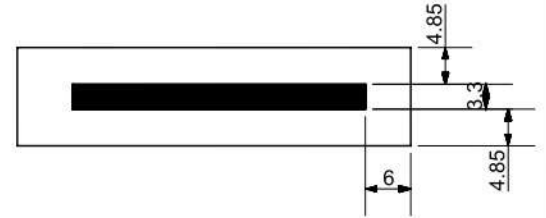


FIG. 6

परिवर्तन संख्या ALT. NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION		दिनांकित बाबत DATED INITIAL		समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		अनुमोदित स.मु.वि.अ. APPROVED DYCEE		दिनांक DATE		रैखिक अनुपात SCALE		संदर्भ / REF.		अधिकृत DGN		जोचा व.अ.अ. CHD SSE		पदार्थ MATL		प्रति भाग कि. ग्रा. WT. EACH IN KG		विशिष्ट SPECN		वर्णन DESCRIPTION		आरेखण संख्या DRAWING NO.		परिवर्तन संख्या ALTERATION. NO.		पृष्ठ SHEET		1 OF 1		A4																					
सतह - चकता का मान मा. मा. 3073 / अ. मा. सं. 1302		अनिर्दिष्ट सतह - सीमा मा. मा. : 2102 / अ. मा. सं. : 2768		UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768		TOL. CLS.		अनुमोदित स.मु.वि.अ.		APPROVED DYCEE		दिनांक		रैखिक अनुपात		संदर्भ / REF.		अधिकृत		जोचा व.अ.अ.		पदार्थ		प्रति भाग कि. ग्रा.		विशिष्ट		वर्णन		आरेखण संख्या		परिवर्तन संख्या		पृष्ठ		1 OF 1		A4																					
SURFACE ROUGHNESS VALUE TO IS:7073 / ISO:1302		आवृत्ति-वेल्डिंग चिह्न मा. मा. : 813 / अ. मा. सं. : 2563		WELDING SYMBOLS TO IS:813 / ISO:2553		TOL. CLS.		अनुमोदित स.मु.वि.अ.		APPROVED DYCEE		दिनांक		रैखिक अनुपात		संदर्भ / REF.		अधिकृत		जोचा व.अ.अ.		पदार्थ		प्रति भाग कि. ग्रा.		विशिष्ट		वर्णन		आरेखण संख्या		परिवर्तन संख्या		पृष्ठ		1 OF 1		A4																					
पदार्थ		सं1		सं2		सं3		सं4		सं5		सं6		सं7		सं8		सं9		सं10		सं11		सं12		TOL. CLS.		अनुमोदित स.मु.वि.अ.		APPROVED DYCEE		दिनांक		रैखिक अनुपात		संदर्भ / REF.		अधिकृत		जोचा व.अ.अ.		पदार्थ		प्रति भाग कि. ग्रा.		विशिष्ट		वर्णन		आरेखण संख्या		परिवर्तन संख्या		पृष्ठ		1 OF 1		A4	
GRADE NO.		N1		N2		N3		N4		N5		N6		N7		N8		N9		N10		N11		N12		TOL. CLS.		अनुमोदित स.मु.वि.अ.		APPROVED DYCEE		दिनांक		रैखिक अनुपात		संदर्भ / REF.		अधिकृत		जोचा व.अ.अ.		पदार्थ		प्रति भाग कि. ग्रा.		विशिष्ट		वर्णन		आरेखण संख्या		परिवर्तन संख्या		पृष्ठ		1 OF 1		A4	
Rz		0.16-0.3		0.5-0.7		0.9-1.1		1.5-2.0		2.5-3.0		5.0-6.3		9.0-12		16-25		30-40		50-63		75-100		100-250		TOL. CLS.		अनुमोदित स.मु.वि.अ.		APPROVED DYCEE		दिनांक		रैखिक अनुपात		संदर्भ / REF.		अधिकृत		जोचा व.अ.अ.		पदार्थ		प्रति भाग कि. ग्रा.		विशिष्ट		वर्णन		आरेखण संख्या		परिवर्तन संख्या		पृष्ठ		1 OF 1		A4	
Ra μm		0.025		0.05		0.1		0.2		0.4		0.8		1.6		3.2		6.3		12.5		25		50		TOL. CLS.		अनुमोदित स.मु.वि.अ.		APPROVED DYCEE		दिनांक		रैखिक अनुपात		संदर्भ / REF.		अधिकृत		जोचा व.अ.अ.		पदार्थ		प्रति भाग कि. ग्रा.		विशिष्ट		वर्णन		आरेखण संख्या		परिवर्तन संख्या		पृष्ठ		1 OF 1		A4	
चिह्न		SYMBOL		SYMBOL		SYMBOL		SYMBOL		SYMBOL		SYMBOL		SYMBOL		SYMBOL		SYMBOL		SYMBOL		SYMBOL		SYMBOL		TOL. CLS.		अनुमोदित स.मु.वि.अ.		APPROVED DYCEE		दिनांक		रैखिक अनुपात		संदर्भ / REF.		अधिकृत		जोचा व.अ.अ.		पदार्थ		प्रति भाग कि. ग्रा.		विशिष्ट		वर्णन		आरेखण संख्या		परिवर्तन संख्या		पृष्ठ		1 OF 1		A4	

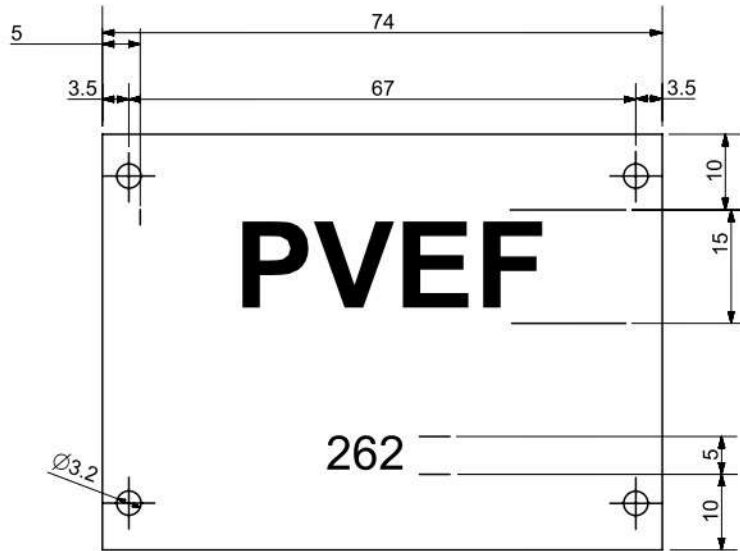


FIG.-10

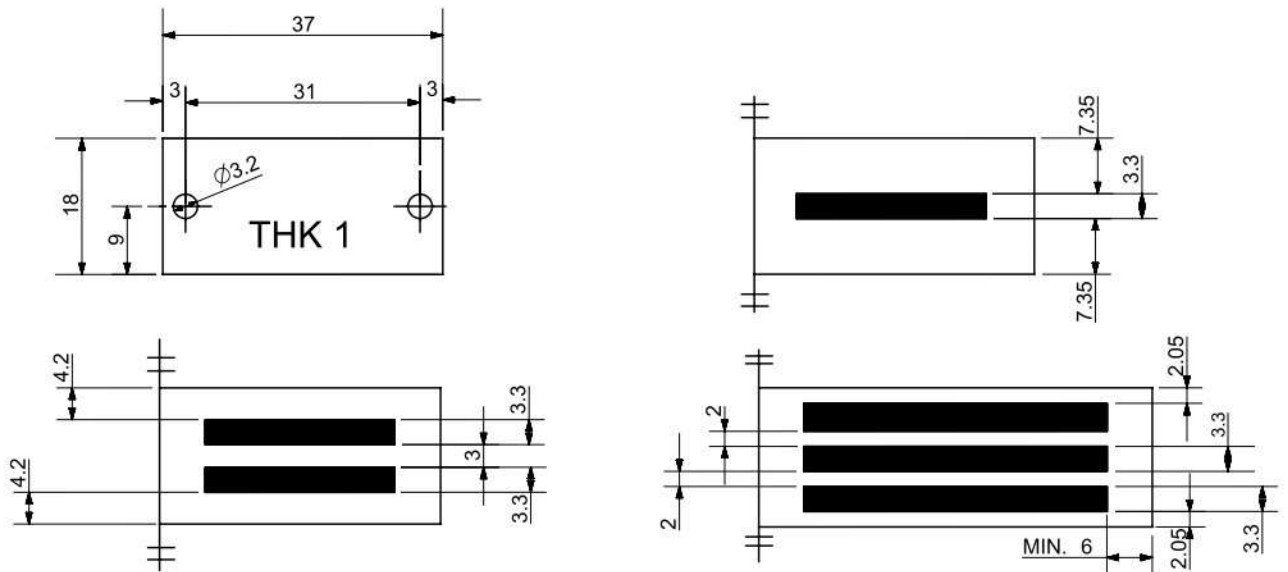


FIG.-11

												अभिकल्पित DGN				 चिततरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA		
												जॉचा व.अ.अ. CHD SSE						
परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION						दिनांकित बाबत DATED INITIAL		समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		पदार्थ MATL		प्रति भाग कि. ग्रा. WT. EACH IN KG		
सतह — रूखाता का मान मा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302		अनिर्दिष्ट सतह — सीमा मा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768						TOL. CLS.		अनुमोदित स.मु.वि.अ. APPROVED DYCEE				वर्णन DESCRIPTION		SET OF RATING PLATE		
		धातु-वेल्डिंग चिह्न मा. मा. : 813 / अ. मा. सं. : 2553 WELDING SYMBOLS TO IS:813 / ISO:2553								दिनांक DATE								
पदार्थ GRADE NO.		सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	रेखिक अनुपात SCALE	N.T.S		आरेखण संख्या DRAWING NO.	
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				CLW/ES/3/0252/J	
Ra μm		0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50					
चिह्न SYMBOL															संदर्भ / REF.		परिवर्तन संख्या ALTERATION. NO.	
															ALT.-		 1 OF 1 A4	

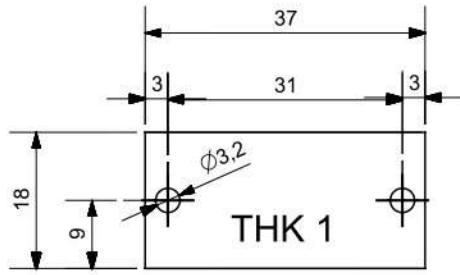


FIG.-12

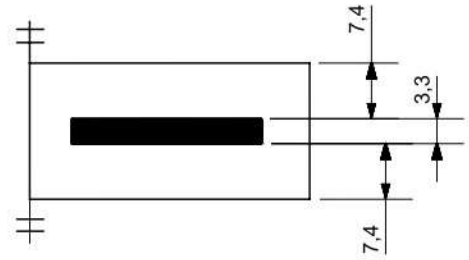


FIG.-13

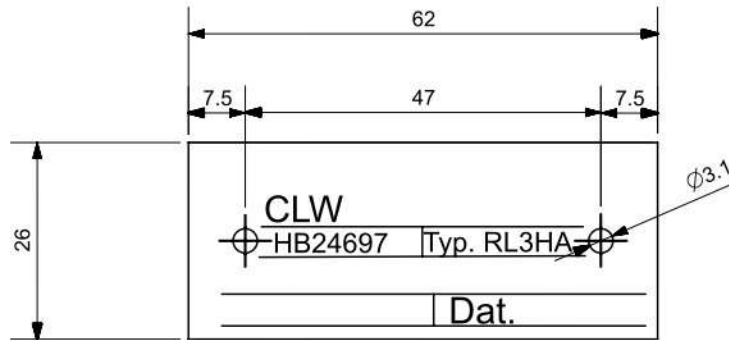
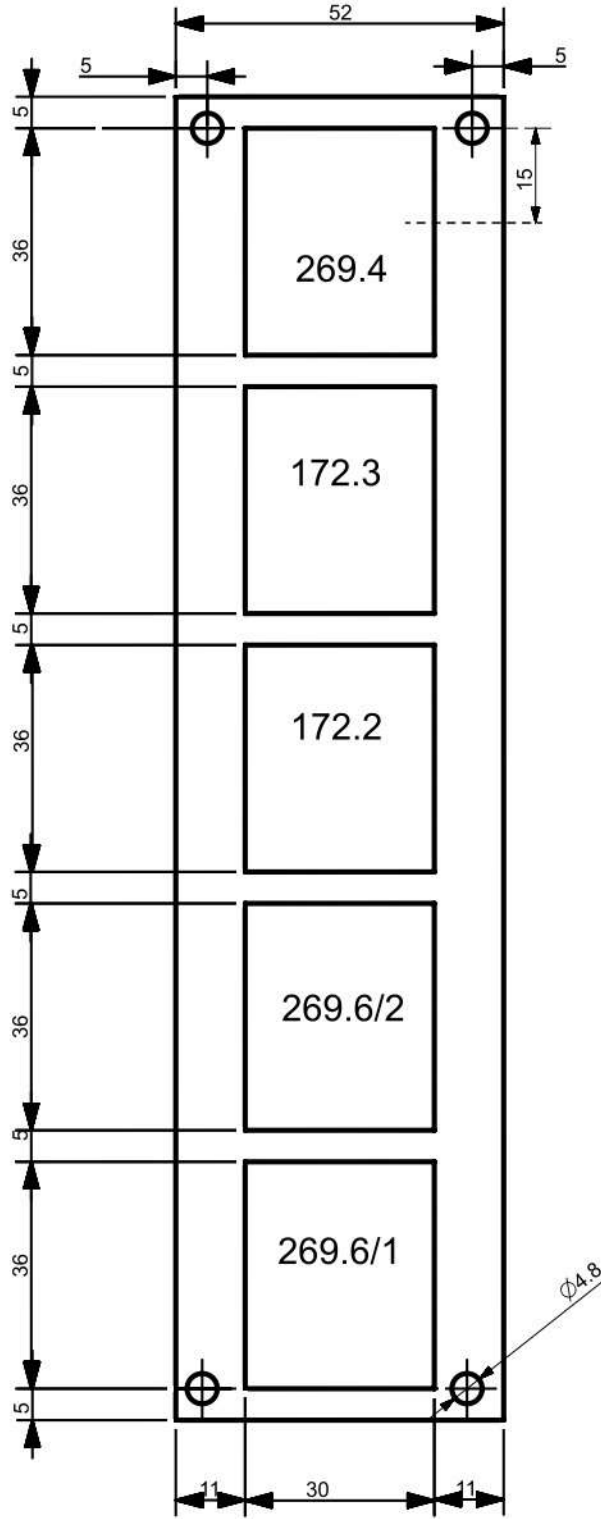


FIG.-14

अधिकृत DGN												 चित्तारंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA						
जोधा व.अ. CHD SSE																		
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION								दिनांकित बाबत DATED INITIAL	समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG					
सतह - चकता का मान मा. 3073 / अ. मा. 1302		अनिर्दिष्ट सतह - सीमा मा. : 2102 / अ. मा. सं. : 2708 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768								TOL. CLS.	अनुमोदित स.मु.वि.अ. APPROVED DYCEE	वर्णन DESCRIPTION	SET OF RATING PLATE					
सतह - चकता का मान मा. 3073 / अ. मा. 1302		धातु-वेल्डन चिह्न मा. : 813 / अ. मा. सं. : 2563 WELDING SYMBOLS TO IS:813 / ISO:2553									दिनांक DATE							
पदार्थ GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	रेखिक अनुपात SCALE	N.T.S.	आरेखण संख्या DRAWING NO.	CLW/ES/3/0252/J		
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						
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50						
चिह्न SYMBOL													संदर्भ / REF.	ALT.-	परिवर्तन संख्या ALTERATION. NO.	पृष्ठ SHEET	1 OF 1	A4



Body height : 5mm
Body thick : 0.5mm
Line thick : 1mm

FIG.-15

परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION		दिनांकित बाबत DATED INITIAL		अभिकल्पित DGN		जॉचा व.अ.अ. CHD SSE		समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		समीक्षित स.वि.अ. अनुमोदित स.मु.वि.अ. APPROVED DYCEE		दिनांक DATE		रैखिक अनुपात SCALE		संदर्भ / REF.		ALT.-	
सतह - रूखाता का मान मा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:7073 / ISO:1302		अनिर्दिष्ट सद्य - सीमा मा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768		घातु-वेल्डन चिन्ह मा. मा. : 813 / अ. मा. सं. : 2553 WELDING SYMBOLS TO IS:813 / ISO:2553		TOL. CLS.		अनुमोदित स.मु.वि.अ.		N.T.S		वर्णन DESCRIPTION		आरेखण संख्या DRAWING NO.		परिवर्तन संख्या ALTERATION. NO.		पृष्ठ SHEET		1 OF 1		A4	
पदांक GRADE NO.		सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	SET OF RATING PLATE		CLW/ES/3/0252/J							
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	100-250										
Ra μ m		0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50										
चिन्ह SYMBOL																							

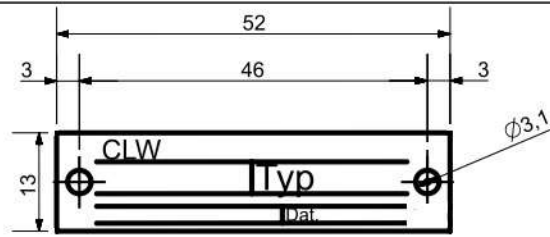
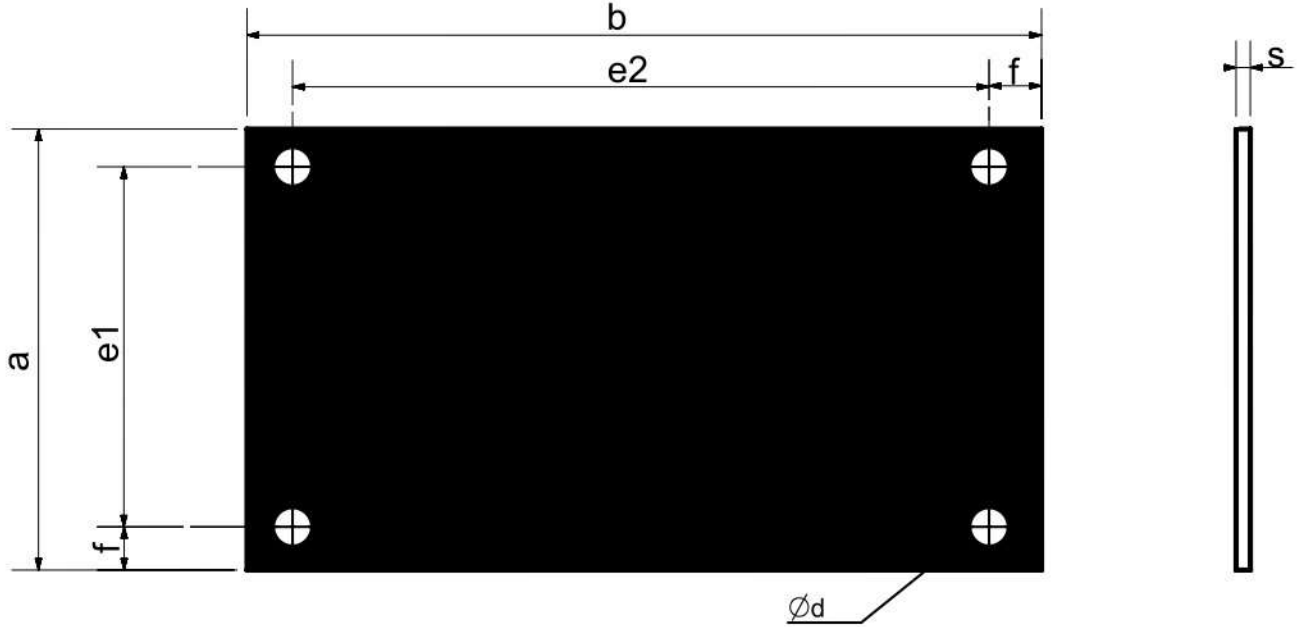


FIG.-16



ID. NO.	FIG. NO.	a	b	f	d	e1	e2	s
NBT200176P6P2	17	52	74	3.5	3.6	45	67	1
NBT200176P63	18	52	105	3.5	3.6	45	98	1
NBT200176P65	19	52	210	5	4.8	42	200	1.5

परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY	वर्णन DESCRIPTION		दिनांकित बाबत DATED INITIAL	अभिलेखित DGN	 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA									
सतह - रूखाता का मान मा. मा. 3073 / अ. मा. सं. 1302		अनिर्दिष्ट सतह - सीमा मा. मा. : 2102 / अ. मा. सं. : 2768		TOL. CLS.		जोचा व.अ.अ. CHD SSE	प्रति भार कि. ग्रा. WT. EACH IN KG									
SURFACE ROUGHNESS VALUE TO IS:7073 / ISO:1302		धातु-वेल्डिंग चिह्न मा. मा. : 813 / अ. मा. सं. : 2563		WELDING SYMBOLS TO IS:813 / ISO:2553		समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	वर्णन DESCRIPTION									
पदांक GRADE NO.		सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	अनुमोदित स.मु.वि.अ. APPROVED DYCEE	SET OF RATING PLATE	
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.0	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	100-250	दिनांक DATE	आरेखण संख्या 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	रेखिक अनुपात SCALE	CLW/ES/3/0252/J		
चिह्न SYMBOL													संदर्भ / REF.	परिवर्तन संख्या ALTERATION. NO.		
													परिवर्तन संख्या ALTERATION. NO.	पृष्ठ SHEET	1 OF 1	A4

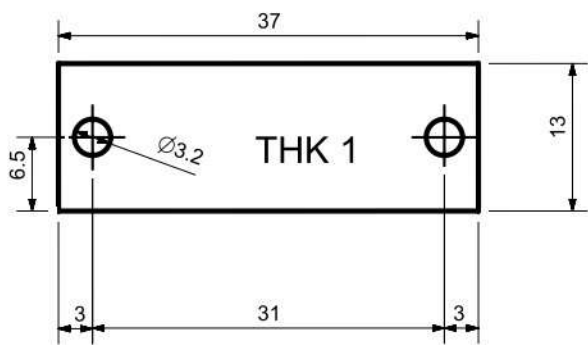


FIG.-20

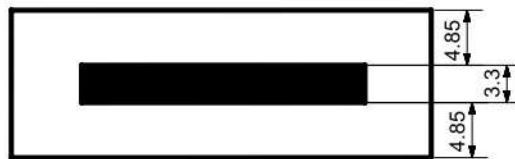


FIG.-21

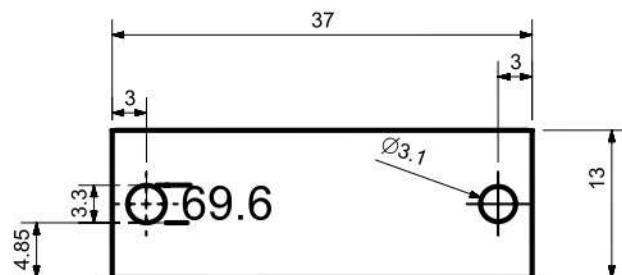
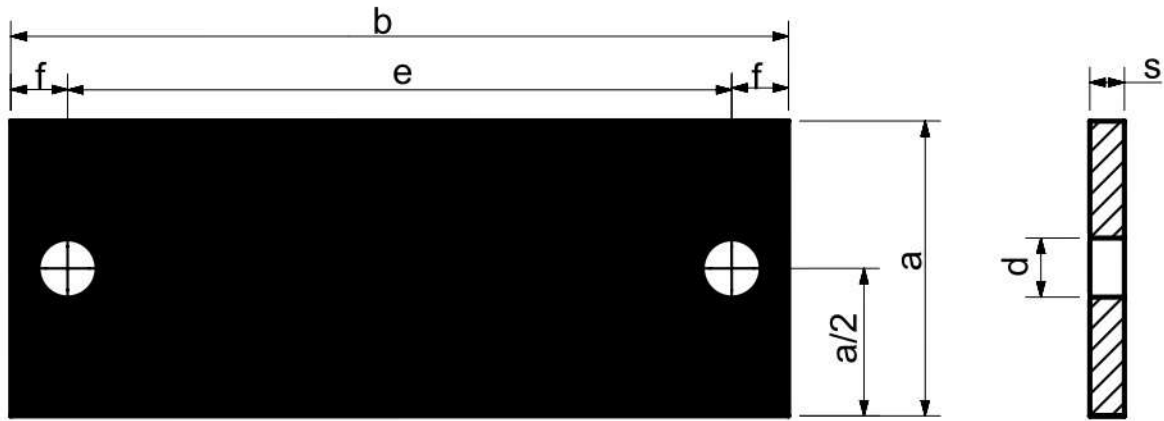


FIG.-22

												अधिकल्पित DGN			चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA						
												जॉचा व.अ.अ. CHD SSE									
परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION						दिनांकित बाबत DATED INITIAL		समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE			पदार्थ MATL		प्रति भार कि. ग्रा. WT. EACH IN KG				
सतह - चकता का मान मा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302		अनिर्दिष्ट सद्य - सीमा मा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768						TOL. CLS.		अनुमोदित स.मु.वि.अ. APPROVED DYCEE					विशिष्ट SPECN						
		धातु-वेल्डन चिह्न मा. मा. : 813 / अ. मा. सं. : 2563 WELDING SYMBOLS TO IS:813 / ISO:2553								दिनांक DATE					वर्णन DESCRIPTION		SET OF RATING PLATE				
पदांक GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	रेखिक अनुपात SCALE	N.T.S.	आरेखण संख्या DRAWING NO.						
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			CLW/ES/3/0252/J						
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50									
चिह्न SYMBOL													संदर्भ / REF.		परिवर्तन संख्या ALTERATION. NO.						
												ALT. -				पर्ण SHEET		1 OF 1		A4	



Darstellung: Schildergrosse 44

ID. NO.	FIG. NO.	a	b	f	d	e	s
NBT200176P24	23	13	37	3	2.4	31+/-0.2	0.5
NBT200176P32	24	18	26	2.5	2.4	21+/-0.2	1

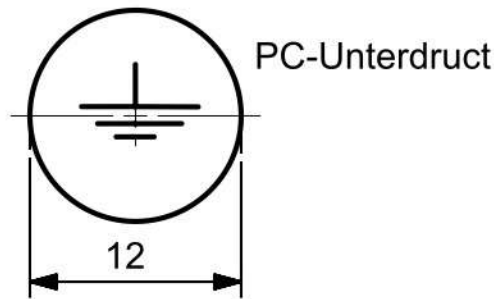


FIG.-25

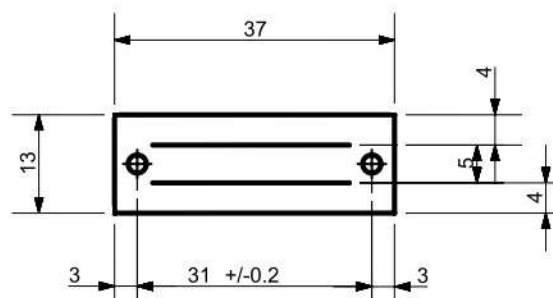


FIG.-26

												अधिकल्पित DGN		 चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA			
												जॉचा व.अ.अ. CHD SSE					
परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION				दिनांक बाबत DATED INITIAL		समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		पदार्थ MATL		प्रति भार कि. ग्रा. WT. EACH IN KG			
सतह — रुखाता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302		अनिर्दिष्ट सतह — सीमा भा. मा. : 2102 / अ. मा. सं. : 2708 UNSPECIFIED TOLEARENCE TO IS : 2102 / ISO : 2708				TOL. CLS.		अनुमोदित स.मु.वि.अ. APPROVED DYCEE				विशिष्ट SPECN					
		धातु-वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. : 2553 WELDING SYMBOLS TO IS:813 / ISO:2553						दिनांक DATE				वर्णन DESCRIPTION		SET OF RATING PLATE			
पदांक GRADE NO.		सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	रेखिक अनुपात SCALE		N.T.S	
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				
Ra μm		0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50				
चिन्ह SYMBOL														संदर्भ / REF.		ALT-	
												 परिवर्तन संख्या ALTERATION NO.		पर्ण SHEET 1 OF 1		A4	

DRAFT

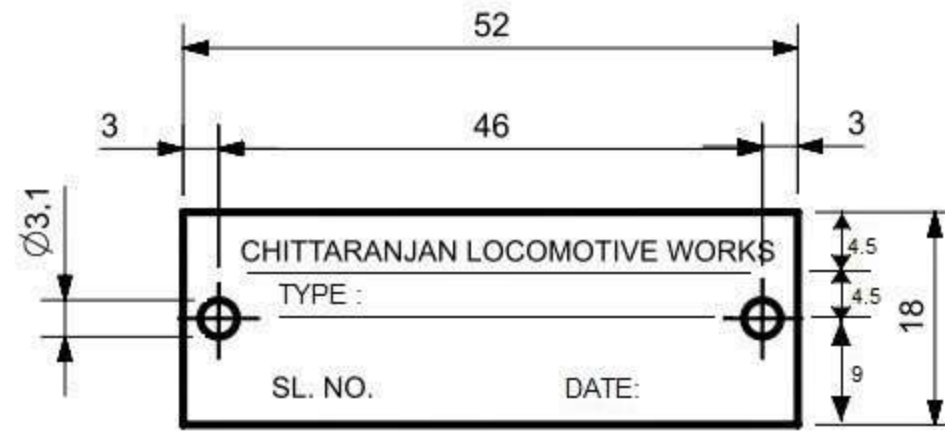


FIG.-27

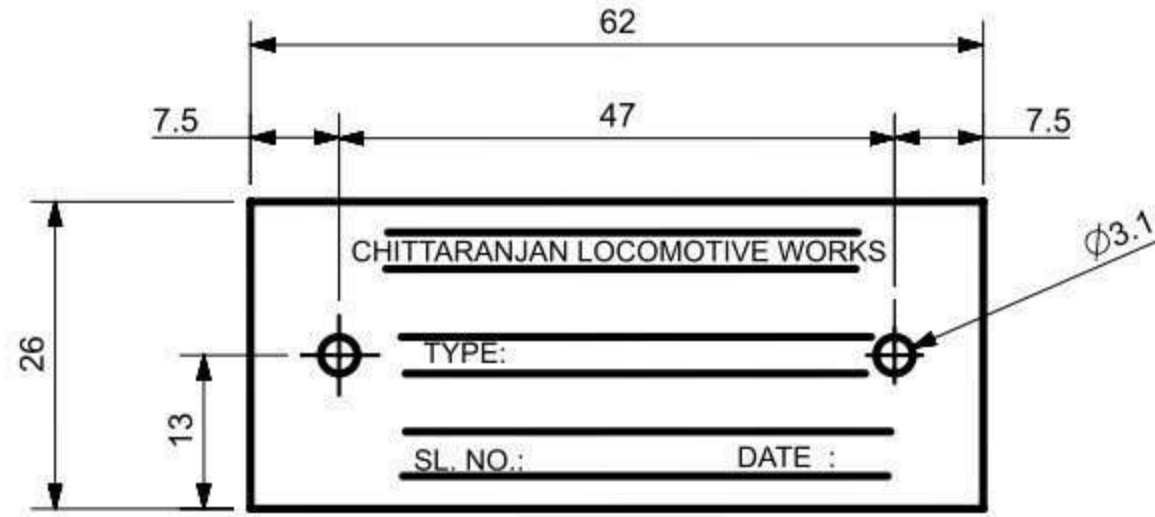


FIG.-28

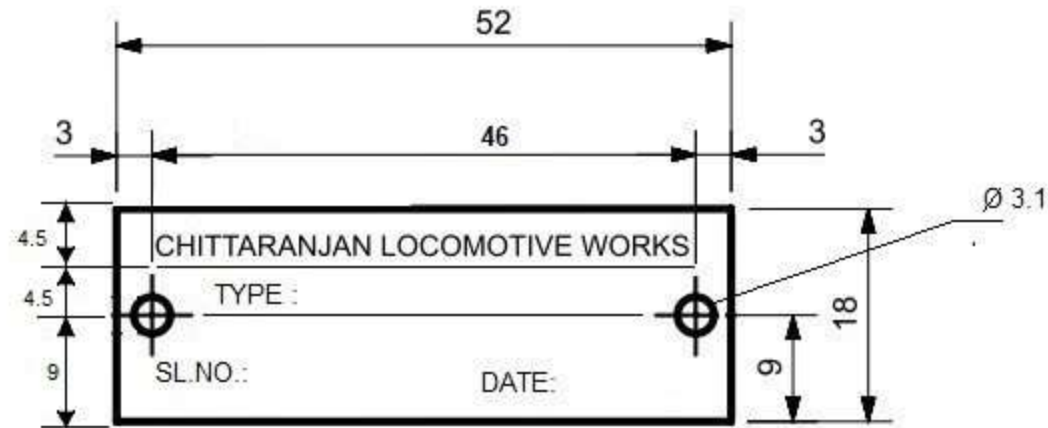


FIG.-29

परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY	वर्णन DESCRIPTION		दिनांक DATED INITIAL	अधिकृत DGN	 चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA									
सतह - रुखाता का मान मा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302		अनिर्दिष्ट सतह - सीमा मा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768		TOL. CLS.	समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	जोचा व.अ.अ. CHD SSE	पदार्थ MATL	प्रति भार कि. ग्रा. WT. EACH IN KG								
धातु-वेल्डन चिन्ह मा. मा. : 813 / अ. मा. सं. : 2553 WELDING SYMBOLS TO IS:813 / ISO:2553		अनुमोदित उ.मु.वि.अ. APPROVED DYCEE		दिनांक DATE	वर्णन DESCRIPTION	SET OF RATING PLATE										
पदार्थ GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	रैखिक अनुपात SCALE	N.T.S	आरेखण संख्या DRAWING NO.	CLW/ES/3/0252/J
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.0	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250	संदर्भ / REF.	ALT. -	परिवर्तन संख्या ALTERATION. NO.	पृष्ठ SHEET
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	परिवर्तन संख्या ALTERATION. NO.	पृष्ठ SHEET	1 OF 1	A4

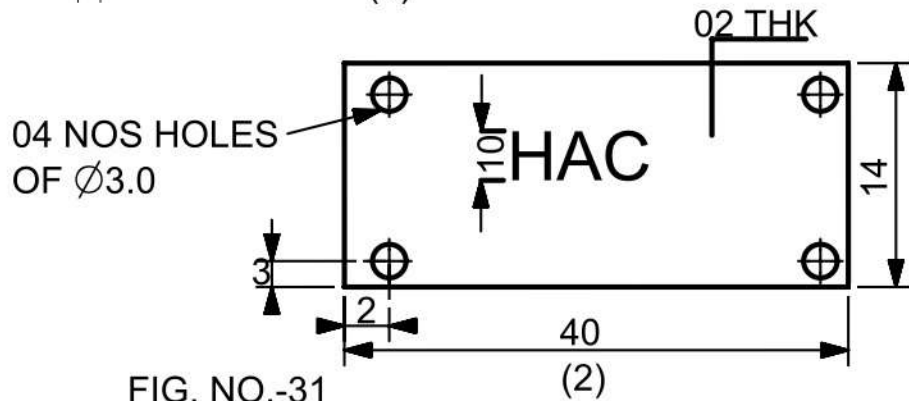
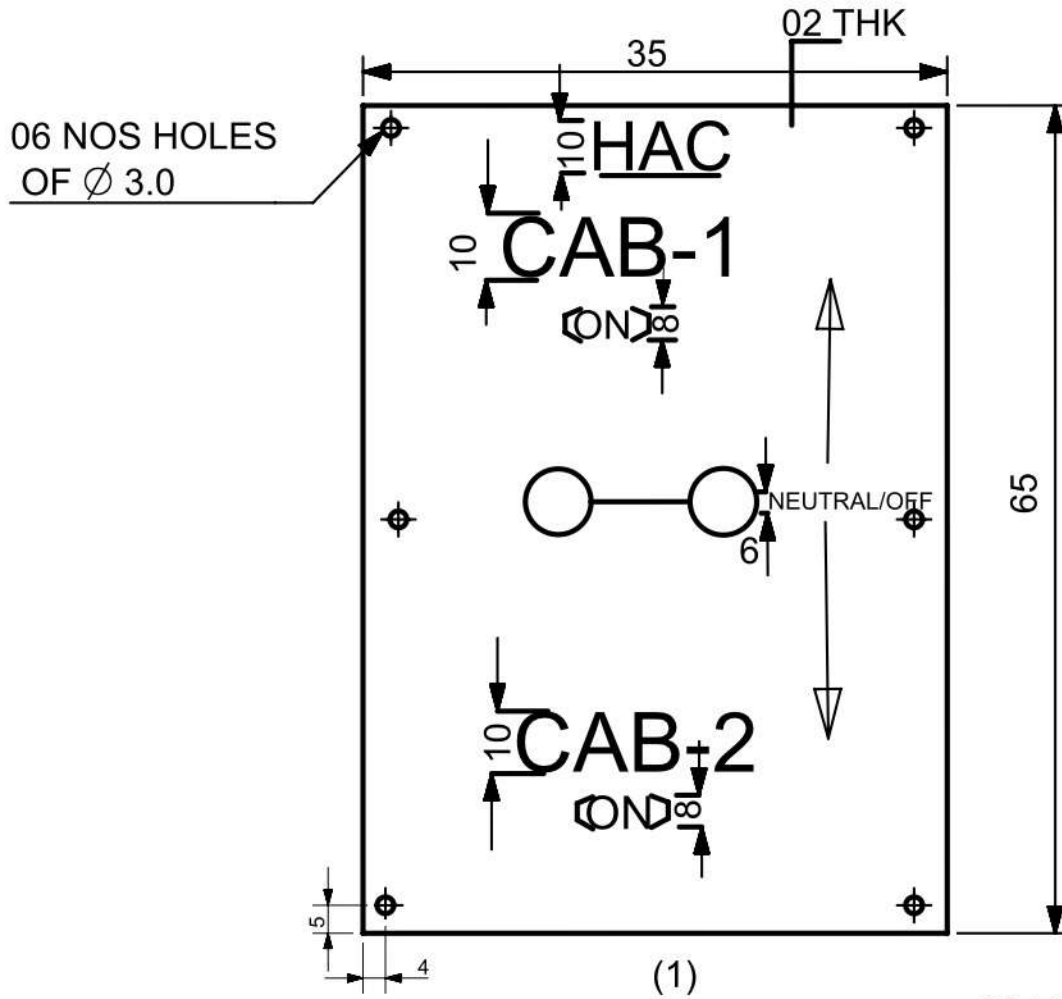


FIG. NO.-31

NOTE:-

- 1) ALL DIMENSIONS ARE IN MM.
 2) QTY/LOCO :- a) REF (1)-01 NO/LOCO
 b) REF (2)-01 NO/LOCO

परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION		दिनांकित बाबत DATED INITIAL		समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		पदार्थ MATL		प्रति भार कि. ग्रा. WT. EACH IN KG	
सतह - रूखाता का मान मा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302		अतिरिक्त सद्य - सीमा मा. मा. : 2102 / अ. मा. सं. : 2708 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768		धातु-वेल्डन चिन्ह मा. मा. : 813 / अ. मा. सं. : 2563 WELDING SYMBOLS TO IS:813 / ISO:2553		TOL. CLS.		अनुमोदित स.मु.वि.अ. APPROVED DYCEE		वर्णन DESCRIPTION		SET OF RATING PLATE	
पदार्थ GRADE NO.		सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12
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
Ra		0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL													
								संदर्भ / REF.		आरेखण संख्या DRAWING NO.		परिवर्तन संख्या ALTERATION. NO.	
								ALT -				पर्ण SHEET 1 OF 1	
												A4	