

संदर्भ/Ref : CC-ENGG-C2021001-1001422-T14221-4521-BMDA+9BE

Date : 13/03/2024

From : NITESH KUMAR SINHA
Senior DGM**To :** SKIPPER LTD.
3A loudon Street Kolkata 700017
700017**Cc :** ER**Subject :** Tower Package-TW01 for Indian Portion of New Butwal-Gorakhpur 400kV D/C (Quad) line
LOA Ref : 5002002333/CONSULTANCY GIVEN/DOM/A04-CC CS-5/NOA-I/01,NOA-II/02 Dated 13/06/2023

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No. : SL/PGCIL/400KV/BUTW-GRKH/DA/+9MBE
Orgn. Drg. No. : C2021001-1001422-T14221-4521-BMDA+9BE
Revision No. : 01
Drg. Title : BILL OF MATERIAL FOR TT DA +9M BE FOR 400 kV D/C WZ-5 (ACSR MOOSE) TL
App. Category : CAT-I
Release Date : 13/03/2024



Scan to verify

Comments : APPROVED**अनुमोदित श्रेणी/App. Category:**

- I. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु जारी।
Approved/released for fabrication/construction.
- II. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु अनुमोदित/जारी बशर्ते दिए गए टिप्पणियाँ एवं आशोधनों की सम्मिलित किया जाये। कृपया रिवाइज्ड दस्तावेज अनुमोदनार्थ प्रस्तुत करें।
Approved/released for fabrication/ construction subject to incorporation of comments and modification as noted. Revised drawing required for approval.
- III. टिप्पणियाँ सम्मिलित करने के उपरांत दस्तावेज को अनुमोदनार्थ प्रस्तुत करें।
To be resubmitted for approval after incorporating the comments.
- IV. सूचनार्थ एवं रिकार्ड हेतु।
For information and record.
- CATREL/
REL-CON निर्माण हेतु जारी।
Released for construction.

नोट/Note:

1. Approval/Comments conveyed herein neither relieve the contractor of his contractual obligations and his responsibilities, weights, quantities, design details assemble fits, performance particulars and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limits the purchaser's right under the contract.
2. The approval conveyed vide this letter does not cover the approval of make for sub-vendor items.

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/150/+9MBE
NO. OF SHEET : 7

POWER GRID CORPORATION OF INDIA LTD.
(A Government of India Enterprise)

BILL OF MATERIALS
INITIAL / FINAL
(GALVANIZED)

STRUCTURE UNIT : 400KV D/C "DA(0°-2°) MKD"G507 DA"
PART : +9M BODY EXTN.
REF.DRG.NO. : C:ENGG:TL:4524-4ACSR-M-P-11 (SHEET 1 TO 3) & 12
NOA No. : 5002002333/CONSULTANCY GIVEN/DOM/ A04-CC CS -5/NOA-I/01 Dated 13.06.2023 (Supply) & 5002002333/CONSULTANCY GIVEN/DOM/A04-CC-CS -5/NOA-II/02 Dated 13.06.2023 (Service)
LINE NAME : Tower Package TW0I for India Portion of 400 KV D/C (Quad Moose) New Butwal - Gorakhpur Transmission Line.
(Specification No. 5002002333/ CONSULTANCY GIVEN/DOM/A04-CC CS-5)

NOTE FOR PREFIX	
SP4BDA XXX	FOR M.S
SP4BDA XXXH	FOR H.T

THIS BILL OF MATERIAL IS APPLICABLE FOR MANUFACTURE OF TOWERS
AT FACTORY OF SKIPPER LIMITED, HOWRAH

SUMMARY OF WEIGHTS

SL.NO.	DESCRIPTION	WEIGHT OF +9M BODY EXTN.		
1	WT.OF ALL (HT) MEMBERS IN KGS.	3522.36		
2	WT.OF ALL (MS) MEMBERS IN KGS.(INCL. PACK WASHERS)	2237.61		
3	WT.OF BOLT & NUTS IN KGS.	192.13		
	TOTAL WT. OF STRUCTURES IN KGS.	5952.10		
B	UNIVERSAL PLATE REVISED AS PER PGCIL COMMENTS		04.03.2024	BKL
A	PROTO CORRECTED & SUCCESSFULLY TESTED AT SKIPPER LTD. TEST BED DATED 20.12.23		27.12.2023	BKL
0	FIRST ISSUE		18.10.2023	BKL
REV. No.	DESCRIPTION		DATE	INITIAL
PREPARED BY:	CHECKED BY:	VERIFIED BY:	CONTRACTOR	
P.KOLE	B.K.LAHA	S.B	SKIPPER LIMITED KOLKATA	

WARNING : THIS IS PROPRIETARY ITEM AND DESIGN RIGHT IS STRICTLY RESERVED WITH POWERGRID.UNDER NO CIRCUMSTANCES
THIS DRAWING SHALL BE USED BY ANYBODY WITHOUT PRIOR PERMISSION FROM THE OWNER IN WRITING.

Tower Package TW0I for India Portion of 400 KV D/C (Quad Moose) New Butwal - Gorakhpur Transmission Line.
(Specification No. 5002002333/ CONSULTANCY GIVEN/DOM/A04-CC CS-5)

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DD/+9MBE

STRUCTURE : 400KV D/C "DA(0°-2°)"-MKD"G507 DA"

BILL OF MATERIALS

PART : +9M BODY EXTN.

SL.No.	MARK No.		SECTION / PLATE THICKNESS (mm)	PLATE WIDTH (mm)	LENGTH (mm)	UNIT WT (kg/m)	WEIGHT/PC (kg)	PIECES / STRUCT.	TOTAL WT. (kg)	REMARKS
1	SP4BDA	800H	HL150X150X14	140	5250	31.60	165.90	2	331.80	
2	SP4BDA	801H	HL150X150X14		5250	31.60	165.90	2	331.80	
3	SP4BDA	802H	HL150X150X14		4037	31.60	127.57	2	255.14	
4	SP4BDA	803H	HL150X150X14		4037	31.60	127.57	2	255.14	
5	SP4BDA	804H	HL130X130X10		422	19.72	8.32	8	66.56	
6	SP4BDA	805H	H12 THK.		422	94.20	5.57	16	89.12	
7	SP4BDA	805P	6 THK.		189	47.10	0.98	2	1.96	
8	SP4BDA	806H	HL90X90X6		6736	8.32	56.04	2	112.08	
9	SP4BDA	807H	HL90X90X6		6736	8.32	56.04	2	112.08	
10	SP4BDA	808H	HL90X90X6		7000	8.32	58.24	2	116.48	
11	SP4BDA	809H	HL90X90X6	80	7000	8.32	58.24	2	116.48	
12	SP4BDA	810H	HL70X70X5		346	5.38	1.86	2	3.72	
13	SP4BDA	811H	HL70X70X5		346	5.38	1.86	2	3.72	
14	SP4BDA	812H	H8 THK.		306	62.80	1.54	8	12.32	
15	SP4BDA	813	L50X50X5		1195	3.79	4.53	2	9.06	
16	SP4BDA	814	L50X50X5		1195	3.79	4.53	2	9.06	
17	SP4BDA	815	L45X45X4		1606	2.75	4.42	2	8.84	
18	SP4BDA	816	L45X45X4		1606	2.75	4.42	2	8.84	
19	SP4BDA	817	L60X60X4		2420	3.71	8.98	2	17.96	
20	SP4BDA	818	L60X60X4		2420	3.71	8.98	2	17.96	
21	SP4BDA	819	L55X55X4		2482	3.40	8.44	2	16.88	
22	SP4BDA	820	L55X55X4		2482	3.40	8.44	2	16.88	
23	SP4BDA	821	L70X70X5		3645	5.38	19.61	2	39.22	
24	SP4BDA	822	L70X70X5		3645	5.38	19.61	2	39.22	
25	SP4BDA	823	L60X60X4		4481	3.71	16.62	2	33.24	
26	SP4BDA	824	L60X60X4		4481	3.71	16.62	2	33.24	
27	SP4BDA	825	L50X50X4		1546	3.08	4.76	2	9.52	
28	SP4BDA	826	L50X50X4		1546	3.08	4.76	2	9.52	
29	SP4BDA	827	L45X45X4		1824	2.75	5.02	2	10.04	
30	SP4BDA	828	L45X45X4		1824	2.75	5.02	2	10.04	
31	SP4BDA	829	L45X45X4		2647	2.75	7.28	2	14.56	
32	SP4BDA	830	L45X45X4		2647	2.75	7.28	2	14.56	
33	SP4BDA	831H	HL45X45X4		1530	2.75	4.21	2	8.42	
34	SP4BDA	832H	HL45X45X4		1530	2.75	4.21	2	8.42	
35	SP4BDA	833	L45X45X4		1994	2.75	5.48	2	10.96	
36	SP4BDA	834	L45X45X4		1994	2.75	5.48	2	10.96	
37	SP4BDA	835	L75X75X5		6095	5.77	35.17	2	70.34	
38	SP4BDA	836	L75X75X5		6095	5.77	35.17	2	70.34	
39	SP4BDA	837	L60X60X5		5470	4.58	25.05	2	50.10	
40	SP4BDA	838	L60X60X5		5470	4.58	25.05	2	50.10	
41	SP4BDA	839	L60X60X4		2097	3.71	7.78	2	15.56	
42	SP4BDA	840	L60X60X4		2097	3.71	7.78	2	15.56	
43	SP4BDA	841	L60X60X4		2203	3.71	8.17	2	16.34	
44	SP4BDA	842	L60X60X4		2203	3.71	8.17	2	16.34	

Tower Package TW0I for India Portion of 400 KV D/C (Quad Moose) New Butwal - Gorakhpur Transmission Line.
(Specification No. 5002002333/ CONSULTANCY GIVEN/DOM/A04-CC CS-5)

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DD/+9MBE

STRUCTURE : 400KV D/C "DA(0°-2°)"-MKD"G507 DA"

BILL OF MATERIALS

PART : +9M BODY EXTN.

SL.No.	MARK No.		SECTION / PLATE THICKNESS (mm)	PLATE WIDTH (mm)	LENGTH (mm)	UNIT WT (kg/m)	WEIGHT/PC (kg)	PIECES / STRUCT.	TOTAL WT. (kg)	REMARKS
45	SP4BDA	843	L45X45X4	187	1344	2.75	3.70	2	7.40	
46	SP4BDA	844	L45X45X4		1344	2.75	3.70	2	7.40	
47	SP4BDA	845	L45X45X4		2905	2.75	7.99	2	15.98	
48	SP4BDA	846	L45X45X4		2905	2.75	7.99	2	15.98	
49	SP4BDA	847H	HL50X50X4		2138	3.08	6.59	2	13.18	
50	SP4BDA	848H	HL50X50X4		2138	3.08	6.59	2	13.18	
51	SP4BDA	849	L60X60X4		3019	3.71	11.20	2	22.40	
52	SP4BDA	850	L60X60X4		3019	3.71	11.20	2	22.40	
53	SP4BDA	851H	H12 THK.		519	94.20	9.14	2	18.28	
54	SP4BDA	852H	HL100X100X6		5757	9.26	53.31	2	106.62	
55	SP4BDA	853H	HL100X100X6		5757	9.26	53.31	2	106.62	
56	SP4BDA	854H	HL100X100X6		6000	9.26	55.56	2	111.12	
57	SP4BDA	855H	HL100X100X6		6000	9.26	55.56	2	111.12	
58	SP4BDA	856H	HL75X75X5		376	5.77	2.17	2	4.34	
59	SP4BDA	857H	HL75X75X5		376	5.77	2.17	2	4.34	
60	SP4BDA	858H	H8 THK.	90	376	62.80	2.13	8	17.04	
61	SP4BDA	859	L50X50X5		891	3.79	3.38	2	6.76	
62	SP4BDA	860	L50X50X5		891	3.79	3.38	2	6.76	
63	SP4BDA	861	L45X45X4		1524	2.75	4.19	2	8.38	
64	SP4BDA	862	L45X45X4		1524	2.75	4.19	2	8.38	
65	SP4BDA	863H	HL50X50X4		1791	3.08	5.52	2	11.04	
66	SP4BDA	864H	HL50X50X4		1791	3.08	5.52	2	11.04	
67	SP4BDA	865	L50X50X4		2056	3.08	6.33	2	12.66	
68	SP4BDA	866	L50X50X4		2056	3.08	6.33	2	12.66	
69	SP4BDA	867	L60X60X5		2690	4.58	12.32	2	24.64	
70	SP4BDA	868	L60X60X5		2690	4.58	12.32	2	24.64	
71	SP4BDA	869	L55X55X4		3734	3.40	12.70	2	25.40	
72	SP4BDA	870	L55X55X4		3734	3.40	12.70	2	25.40	
73	SP4BDA	871	L45X45X4		1151	2.75	3.17	2	6.34	
74	SP4BDA	872	L45X45X4		1151	2.75	3.17	2	6.34	
75	SP4BDA	873	L45X45X4		1658	2.75	4.56	2	9.12	
76	SP4BDA	874	L45X45X4		1658	2.75	4.56	2	9.12	
77	SP4BDA	875	L45X45X4		2685	2.75	7.38	2	14.76	
78	SP4BDA	876	L45X45X4		2685	2.75	7.38	2	14.76	
79	SP4BDA	877	L45X45X4		1127	2.75	3.10	2	6.20	
80	SP4BDA	878	L45X45X4		1127	2.75	3.10	2	6.20	
81	SP4BDA	879	L45X45X4		1738	2.75	4.78	2	9.56	
82	SP4BDA	880	L45X45X4		1738	2.75	4.78	2	9.56	
83	SP4BDA	881	L60X60X5		4490	4.58	20.56	2	41.12	
84	SP4BDA	882	L60X60X5		4490	4.58	20.56	2	41.12	
85	SP4BDA	883	L60X60X4		4356	3.71	16.16	2	32.32	
86	SP4BDA	884	L60X60X4		4356	3.71	16.16	2	32.32	
87	SP4BDA	885	L50X50X4		1553	3.08	4.78	2	9.56	
88	SP4BDA	886	L50X50X4		1553	3.08	4.78	2	9.56	

Tower Package TW0I for India Portion of 400 KV D/C (Quad Moose) New Butwal - Gorakhpur Transmission Line.
(Specification No. 5002002333/ CONSULTANCY GIVEN/DOM/A04-CC CS-5)

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DD/+9MBE

STRUCTURE : 400KV D/C "DA(0°-2°)"-MKD"G507 DA"

BILL OF MATERIALS

PART : +9M BODY EXTN.

SL.No.	MARK No.		SECTION / PLATE THICKNESS (mm)	PLATE WIDTH (mm)	LENGTH (mm)	UNIT WT (kg/m)	WEIGHT/PC (kg)	PIECES / STRUCT.	TOTAL WT. (kg)	REMARKS
89	SP4BDA	887	L55X55X4	209	1867	3.40	6.35	2	12.70	
90	SP4BDA	888	L55X55X4		1867	3.40	6.35	2	12.70	
91	SP4BDA	889	L45X45X4		1338	2.75	3.68	2	7.36	
92	SP4BDA	890	L45X45X4		1338	2.75	3.68	2	7.36	
93	SP4BDA	891	L45X45X4		2857	2.75	7.86	2	15.72	
94	SP4BDA	892	L45X45X4		2857	2.75	7.86	2	15.72	
95	SP4BDA	893H	HL45X45X4		1613	2.75	4.44	4	17.76	
96	SP4BDA	894	L50X50X4		2430	3.08	7.48	2	14.96	
97	SP4BDA	895	L50X50X4		2430	3.08	7.48	2	14.96	
98	SP4BDA	896H	H12 THK.		500	94.20	9.84	2	19.68	
99	SP4BDA	897H	HL90X90X6	80	6800	8.32	56.58	2	113.16	
100	SP4BDA	898H	HL90X90X6		5722	8.32	47.61	2	95.22	
101	SP4BDA	899H	HL70X70X5		286	5.38	1.54	2	3.08	
102	SP4BDA	900H	H8 THK.		286	62.80	1.44	4	5.76	
103	SP4BDA	901H	HL100X100X6		6000	9.26	55.56	2	111.12	
104	SP4BDA	902H	HL100X100X6		6000	9.26	55.56	2	111.12	
105	SP4BDA	903H	HL100X100X6		5029	9.26	46.57	2	93.14	
106	SP4BDA	904H	HL75X75X5		286	5.77	1.65	4	6.60	
107	SP4BDA	905H	H8 THK.		286	62.80	1.62	8	12.96	
108	SP4BDA	906H	HL75X75X5		4076	5.77	23.52	2	47.04	
109	SP4BDA	907H	HL75X75X5	90	5000	5.77	28.85	2	57.70	
110	SP4BDA	908H	HL75X75X5		4076	5.77	23.52	2	47.04	
111	SP4BDA	909H	HL75X75X5		5000	5.77	28.85	2	57.70	
112	SP4BDA	910H	HL60X60X4		286	3.71	1.06	4	4.24	
113	SP4BDA	911H	H6 THK.		256	47.10	0.78	8	6.24	
114	SP4BDA	912H	HL70X70X5		4000	5.38	21.52	2	43.04	
115	SP4BDA	913H	HL70X70X5		3568	5.38	19.20	2	38.40	
116	SP4BDA	914H	HL70X70X5		4000	5.38	21.52	2	43.04	
117	SP4BDA	915H	HL70X70X5		3568	5.38	19.20	2	38.40	
118	SP4BDA	916H	HL60X60X4		286	3.71	1.06	4	4.24	
119	SP4BDA	917H	H6 THK.	60	256	47.10	0.72	8	5.76	
120	SP4BDA	918H	HL70X70X5		5746	5.38	30.91	2	61.82	
121	SP4BDA	919	L45X45X4		1085	2.75	2.98	2	5.96	
122	SP4BDA	920H	HL60X60X5		4224	4.58	19.35	2	38.70	
123	SP4BDA	921H	HL45X45X4		1460	2.75	4.02	2	8.04	
124	SP4BDA	922H	HL45X45X4		1776	2.75	4.88	2	9.76	
125	SP4BDA	923H	HL45X45X4		1776	2.75	4.88	2	9.76	
126	SP4BDA	924H	HL45X45X4		1305	2.75	3.59	2	7.18	
127	SP4BDA	925H	HL45X45X4		1305	2.75	3.59	2	7.18	
128	SP4BDA	926H	HL45X45X4		1814	2.75	4.99	2	9.98	
129	SP4BDA	927H	HL45X45X4		1814	2.75	4.99	2	9.98	
130	SP4BDA	928H	HL45X45X4		1550	2.75	4.26	2	8.52	
131	SP4BDA	929H	HL45X45X4		1550	2.75	4.26	2	8.52	
132	SP4BDA	930H	HL90X90X5		333	6.97	2.32	4	9.28	

Tower Package TW0I for India Portion of 400 KV D/C (Quad Moose) New Butwal - Gorakhpur Transmission Line.
(Specification No. 5002002333/ CONSULTANCY GIVEN/DOM/A04-CC CS-5)

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DD/+9MBE

STRUCTURE : 400KV D/C "DA(0°-2°)"-MKD"G507 DA"

BILL OF MATERIALS

PART : +9M BODY EXTN.

SL.No.	MARK No.		SECTION / PLATE THICKNESS (mm)	PLATE WIDTH (mm)	LENGTH (mm)	UNIT WT (kg/m)	WEIGHT/PC (kg)	PIECES / STRUCT.	TOTAL WT. (kg)	REMARKS
133	SP4BDA	932	L45X45X4	50	1375	2.75	3.78	4	15.12	
134	SP4BDA	933	L45X45X4		3007	2.75	8.27	2	16.54	
135	SP4BDA	934	L45X45X4		2439	2.75	6.71	2	13.42	
136	SP4BDA	935	L45X45X4		4362	2.75	12.00	2	24.00	
137	SP4BDA	936	L45X45X4		3712	2.75	10.21	2	20.42	
138	SP4BDA	937	L55X55X4		4464	3.40	15.18	2	30.36	
139	SP4BDA	938	L55X55X4		2970	3.40	10.10	2	20.20	
140	SP4BDA	939	L50X50X4		256	3.08	0.79	2	1.58	
141	SP4BDA	940	5 THK.		231	39.25	0.45	4	1.80	
142	SP4BDA	941	L50X50X4		6250	3.08	19.25	2	38.50	
143	SP4BDA	942	L45X45X4		2253	2.75	6.20	2	12.40	
144	SP4BDA	943	L45X45X4		2400	2.75	6.60	2	13.20	
145	SP4BDA	944	L45X45X4		1192	2.75	3.28	2	6.56	
146	SP4BDA	945	L45X45X4		1426	2.75	3.92	2	7.84	
147	SP4BDA	946	L70X70X5	60	5460	5.38	29.37	2	58.74	
148	SP4BDA	947	L70X70X5		4575	5.38	24.61	2	49.22	
149	SP4BDA	948	5 THK.		256	39.25	0.60	4	2.40	
150	SP4BDA	949	L60X60X5		286	4.58	1.31	2	2.62	
151	SP4BDA	950	L60X60X4		4973	3.71	18.45	2	36.90	
152	SP4BDA	951	L60X60X4		3796	3.71	14.08	2	28.16	
153	SP4BDA	952	L50X50X4		286	3.08	0.88	2	1.76	
154	SP4BDA	953	5 THK.		256	39.25	0.50	4	2.00	
155	SP4BDA	954	L45X45X4		2312	2.75	6.36	2	12.72	
156	SP4BDA	955	L45X45X4		2710	2.75	7.45	2	14.90	
157	SP4BDA	956	L45X45X4		1584	2.75	4.36	2	8.72	
158	SP4BDA	957	L45X45X4		1371	2.75	3.77	2	7.54	
159	SP4BDA	958	L45X45X4		1938	2.75	5.33	2	10.66	
160	SP4BDA	959	L45X45X4		2138	2.75	5.88	2	11.76	
161	SP4BDA	960	5 THK.	120	155	39.25	0.73	16	11.68	
162	SP4BDA	961	5 THK.	120	160	39.25	0.75	16	12.00	
163	SP4BDA	962	5 THK.	145	211	39.25	1.20	2	2.40	
164	SP4BDA	963	5 THK.	145	214	39.25	1.22	2	2.44	
165	SP4BDA	964	5 THK.	175	222	39.25	1.52	2	3.04	
166	SP4BDA	965	5 THK.	172	220	39.25	1.49	2	2.98	
167	SP4BDA	966	5 THK.	120	183	39.25	0.86	2	1.72	
168	SP4BDA	967	5 THK.	120	196	39.25	0.92	2	1.84	
169	SP4BDA	968	L45X45X4	50	2439	2.75	6.71	2	13.42	
170	SP4BDA	969	L45X45X4		3007	2.75	8.27	2	16.54	
171	SP4BDA	970	L45X45X4		3712	2.75	10.21	2	20.42	
172	SP4BDA	971	L45X45X4		4362	2.75	12.00	2	24.00	
173	SP4BDA	972	L55X55X4		4464	3.40	15.18	2	30.36	
174	SP4BDA	973	L55X55X4		2970	3.40	10.10	2	20.20	
175	SP4BDA	974	5 THK.		231	39.25	0.45	4	1.80	
176	SP4BDA	975	L50X50X4		256	3.08	0.79	2	1.58	

Tower Package TW0I for India Portion of 400 KV D/C (Quad Moose) New Butwal - Gorakhpur Transmission Line.
(Specification No. 5002002333/ CONSULTANCY GIVEN/DOM/A04-CC CS-5)

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DD/+9MBE

STRUCTURE : 400KV D/C "DA(0°-2°)"-MKD"G507 DA"

BILL OF MATERIALS

PART : +9M BODY EXTN.

SL.No.	MARK No.		SECTION / PLATE THICKNESS (mm)	PLATE WIDTH (mm)	LENGTH (mm)	UNIT WT (kg/m)	WEIGHT/PC (kg)	PIECES / STRUCT.	TOTAL WT. (kg)	REMARKS
177	SP4BDA	976	L50X50X4		6250	3.08	19.25	2	38.50	
178	SP4BDA	977	L45X45X4		2400	2.75	6.60	2	13.20	
179	SP4BDA	978	L45X45X4		2253	2.75	6.20	2	12.40	
180	SP4BDA	979	L45X45X4		1426	2.75	3.92	2	7.84	
181	SP4BDA	980	L45X45X4		1192	2.75	3.28	2	6.56	
182	SP4BDA	981	L70X70X5		5460	5.38	29.37	2	58.74	
183	SP4BDA	982	L70X70X5		4575	5.38	24.61	2	49.22	
184	SP4BDA	983	L60X60X5		286	4.58	1.31	2	2.62	
185	SP4BDA	984	5 THK.	60	256	39.25	0.60	4	2.40	
186	SP4BDA	985	L60X60X4		4973	3.71	18.45	2	36.90	
187	SP4BDA	986	L60X60X4		3796	3.71	14.08	2	28.16	
188	SP4BDA	987	5 THK.	50	256	39.25	0.50	4	2.00	
189	SP4BDA	988	L50X50X4		286	3.08	0.88	2	1.76	
190	SP4BDA	989	L45X45X4		2710	2.75	7.45	2	14.90	
191	SP4BDA	990	L45X45X4		2312	2.75	6.36	2	12.72	
192	SP4BDA	991	L45X45X4		1371	2.75	3.77	2	7.54	
193	SP4BDA	992	L45X45X4		1584	2.75	4.36	2	8.72	
194	SP4BDA	993	L45X45X4		2138	2.75	5.88	2	11.76	
195	SP4BDA	994	L45X45X4		1938	2.75	5.33	2	10.66	
196	SP4BDA	995	5 THK.	145	211	39.25	1.20	2	2.40	
197	SP4BDA	996	5 THK.	145	214	39.25	1.22	2	2.44	
198	SP4BDA	997	5 THK.	175	222	39.25	1.52	2	3.04	
199	SP4BDA	998	5 THK.	172	220	39.25	1.49	2	2.98	
200	SP4BDA	999	5 THK.	120	183	39.25	0.86	2	1.72	
201	SP4BDA	1000	5 THK.	120	196	39.25	0.92	2	1.84	
TOTAL WT=									5759.68	

For MILD STEEL : (As Per IS : 2062, Designated Y.S. 250Mpa)

For HIGH TENSILE STEEL : (As Per IS:2062, Designated Y.S. 350Mpa)

LIST OF PACK WASHERS

4 THK. PACK WASHERS (For 16 Ø Bolt)	0.014	0	0.00	
5 THK. PACK WASHERS (For 16 Ø Bolt)	0.018	16	0.29	
6 THK. PACK WASHERS (For 16 Ø Bolt)	0.021	0	0.00	
8 THK. PACK WASHERS (For 16 Ø Bolt)	0.028	0	0.00	
10 THK. PACK WASHERS (For 16 Ø Bolt)	0.036	0	0.00	
12 THK. PACK WASHERS (For 16 Ø Bolt)	0.043	0	0.00	
TOTAL WT.			0.29	Kgs

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REV. No	REVISION		DATE	INITIAL

Tower Package TW0I for India Portion of 400 KV D/C (Quad Moose) New Butwal - Gorakhpur Transmission Line.
(Specification No. 5002002333/ CONSULTANCY GIVEN/DOM/A04-CC CS-5)

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DD/+9MBE

STRUCTURE : 400KV D/C "DA(0°-2°)"-MKD"G507 DA"

BILL OF MATERIALS

PART : +9M BODY EXTN.

SL.No.	MARK No.	SECTION / PLATE THICKNESS (mm)	PLATE WIDTH (mm)	LENGTH (mm)	UNIT WT (kg/m)	WEIGHT/PC (kg)	PIECES / STRUCT.	TOTAL WT. (kg)	REMARKS
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WEIGHT OF STEEL MEMBERS

A) TOTAL WT. OF HT STEEL FAB. MEMBER	=	3522.36	Kgs
B) TOTAL WT. OF MILD STEEL FAB. MEMBER	=	2237.32	Kgs
C) TOTAL WT. OF PACK WASHERS	=	0.29	Kgs
GRAND TOTAL WT. OF FAB. MEMBER WITH PACK WASHERS (A+B+C)	=	5759.97	Kgs

LIST OF BOLTS & NUTS CONFORMING TO IS:12427 WITH MECHANICAL PROPERTIES
CONFORMING TO PROPERTY CLASS 5.6 FOR BOLTS AND CLASS 5.0 FOR NUTS.
LIST OF SPRING WASHERS (TYPE-B) AS PER IS:3063-1994, ELECTRO GALVD.

BOLT & NUTS

HRH BOLT / NUT FOR M16X35	0.119		274	32.61
HRH BOLT / NUT FOR M16X40	0.126		316	39.82
HRH BOLT / NUT FOR M16X45	0.134		464	62.18
HRH BOLT / NUT FOR M16X50	0.142		14	1.99
HRH BOLT / NUT FOR M16X55	0.150		0	0.00
HRH BOLT / NUT FOR M16X60	0.158		0	0.00
HRH BOLT / NUT FOR M16X65	0.164		192	31.49
HRH BOLT / NUT FOR M16X70	0.173		4	0.69
HRH BOLT / NUT FOR M16X75	0.180		0	0.00
HRH BOLT / NUT FOR M16X80	0.185		0	0.00
HRH BOLT / NUT FOR M16X85	0.193		0	0.00
HRH BOLT / NUT FOR M16X90	0.199		0	0.00
MS STD. SPR. WASHERS FOR M16 BOLTS	0.009		1264	11.38
STEP BOLTS OF 16X175MM DIA WITH 2 NUTS 1 S.W	0.374		32	11.97
TOTAL WT. OF HEXAGONAL BOLTS / NUTS , SPRING WASHERS STEP BOLT		=	192.13	Kgs

SUMMARY OF WEIGHTS

A) WT. OF MS MEMBERS	=	2237.32	Kgs
B) WT. OF PACK WASHERS	=	0.29	Kgs
C) WT. OF HT MEMBERS	=	3522.36	Kgs
D) WT. OF FAB MEMBERS (A+B+C)	=	5759.97	Kgs
E) WT. OF BOLT & NUTS	=	192.13	Kgs
F) TOTAL	=	5952.10	Kgs

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REV. No	REVISION	DATE	INITIAL	

Tower Package TW01 for India Portion of 400 KV D/C (Quad Moose) New Butwal - Gorakhpur Transmission Line.
(Specification No. 5002002333/ CONSULTANCY GIVEN/DOM/A04-CC CS-5)

STRUCTURE : 400KV D/C "DA(0°-2°)"-MKD"G507 DA"
PART : +9M BODY EXTN.

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DD/+9MBE

SECTION ABSTRACT

MILD STEEL	WEIGHT (Kg)	HIGH TENSILE	WEIGHT (Kg)	MS. PLATE	WEIGHT
L40X40X3		HL45X30X4		2 THK.	
L40X40X4		HL45X30X5		3 THK.	
L40X40X5		HL45X45X4	113.52	4 THK.	
L40X40X6		HL45X45X5		5 THK.	64.92
L45X30X4		HL50X50X4	48.44	6 THK.	1.96
L45X30X5		HL50X50X5		8 THK.	
L45X45X4	672.88	HL55X55X4		10 THK.	
L45X45X3		HL55X55X5		14 THK.	
L45X45X5		HL60X60X4	8.48	32 THK.	
L45X45X6		HL60X60X5	38.70	20 THK.	
L50X50X3		HL60X60X6		22 THK.	
L50X50X4	177.08	HL65X65X4			
L50X50X5	31.64	HL65X65X5		TOTAL MS PLT.	66.88
L50X50X6		HL65X65X6			
L55X55X4	211.08	HL70X70X5	235.22	HT. PLATE	WEIGHT
L55X55X5		HL70X70X6		H6 THK.	12.00
L55X55X6		HL75X75X5	224.76	H5 THK.	
L55X55X8		HL75X75X6		H8 THK.	48.08
L60X60X4	405.76	HL80X80X6		H10 THK.	
L60X60X5	236.96	HL80X80X8		H12 THK.	127.08
L60X60X6		HL90X90X6	665.50	H14 THK.	
L65X65X4		HL90X90X7		H16 THK.	
L65X65X5		HL90X90X8		H20 THK.	
L65X65X6		HL100X100X6	750.86	H18 THK.	
L80X80X5		HL100X100X7			
L70X70X5	294.36	HL100X100X8		TOTAL HT PLT.	187.16
L70X70X6		HL100X100X10			
L75X75X5	140.68	HL110X110X8			
L75X75X6		HL110X110X10			
L80X80X6		HL110X110X12			
L80X80X8		HL80X80X5			
L90X90X5		HL120X120X8			
L90X90X6		HL120X120X10			
L90X90X7		HL120X120X12			
L90X90X8		HL130X130X10	66.56		
L100X100X6		HL130X130X12			
L100X100X7		HL150X150X10			
L100X100X8		HL150X150X12			
L100X100X10		HL150X150X14	1173.88		
L150X150X20		HL90X90X5	9.28		
L200X200X16		HL110X110X6			
L200X200X20		HL110X110X7			
		HL120X120X7			
		HL200X200X12			
		HL200X200X17			
		HL120X120X9			
TOTAL	2170.44	TOTAL	3335.20		
		GRAND TOTAL =	5759.68		