

संदर्भ/Ref : CC-ENGG-C2021001-1001422-T14221-4521-BMDA+3BE

Date : 26/06/2024

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. :**Orgn. Drg. No. :** C2021001-1001422-T14221-4521-BMDA+3BE**Revision No. :** 00**Drg. Title :** BILL OF MATERIAL FOR TT DA +3M BE FOR 400 kV D/C WZ-5 (ACSR
MOOSE) TL**App. Category :** CAT-I**Release Date :** 26/06/2024

Scan to verify

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

- फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु जारी।
Approved/released for fabrication/construction.
 - 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.
 - टिप्पणियाँ सम्मिलित करने के उपरांत दस्तावेज को अनुमोदनार्थ प्रस्तुत करें।
To be resubmitted for approval after incorporating the comments.
 - सूचनार्थ एवं रिकार्ड हेतु।
For information and record.
- CATREL/ निर्माण हेतु जारी।
REL-CON **Released for construction.**

नोट/Note:

- 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.
- The approval conveyed vide this letter does not cover the approval of make for sub-vendor items.

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DA/+3MBE

NO. OF SHEET : 6

POWER GRID CORPORATION OF INDIA LTD.

(A Government of India Enterprise)

BILL OF MATERIALSINITIAL / FINAL
(GALVANIZED)

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

PART : +3.0M BODY EXTN. (ATT. TO BASIC BODY)

REF.DRG.NO. : C:ENGG:TL:4524-4ACSR-M-P-17

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 +3.0M BODY EXTN. (ATT. TO BASIC BODY)		
1	WT.OF ALL (HT) MEMBERS IN KGS.	2866.74		
2	WT.OF ALL (MS) MEMBERS IN KGS.(INCL. PACK WASHERS)	2264.75		
3	WT.OF BOLT & NUTS IN KGS.	164.08		
	TOTAL WT. OF STRUCTURES IN KGS.	5295.57		
0	PROTO CORRECTED		21.06.2024	BKL
REV. No.	DESCRIPTION		DATE	INITIAL
PREPARED BY:	CHECKED BY:	VERIFIED BY:	CONTRACTOR	
			SKIPPER LIMITED	
			KOLKATA	
P.KOLE	B.K.LAHA	S.B		

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/DA/+3MBE

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

BILL OF MATERIALS

PART : +3.0M BODY EXTN. (ATT. TO BASIC BODY)

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	613H	H12 THK.	156	444	94.20	6.52	2	13.04	
2	SP4BDA	653H	H12 THK.	208	412	94.20	8.07	2	16.14	
3	SP4BDA	1550H	HL150X150X14	140	6277	31.60	198.35	2	396.70	
4	SP4BDA	1551H	HL150X150X14		6277	31.60	198.35	2	396.70	
5	SP4BDA	1552H	HL150X150X14		6200	31.60	195.92	2	391.84	
6	SP4BDA	1553H	HL150X150X14		6200	31.60	195.92	2	391.84	
7	SP4BDA	1554H	HL130X130X10		422	19.72	8.32	8	66.56	
8	SP4BDA	1555H	H12 THK.		422	94.20	5.57	16	89.12	
9	SP4BDA	1556H	HL80X80X6		5000	7.36	36.80	2	73.60	
10	SP4BDA	1557H	HL80X80X6	70	5000	7.36	36.80	2	73.60	
11	SP4BDA	1558H	HL80X80X6		5126	7.36	37.73	2	75.46	
12	SP4BDA	1559H	HL80X80X6		5126	7.36	37.73	2	75.46	
13	SP4BDA	1560H	HL80X80X6		4999	7.36	36.79	2	73.58	
14	SP4BDA	1561H	HL80X80X6		4999	7.36	36.79	2	73.58	
15	SP4BDA	1562H	HL60X60X5		346	4.58	1.58	4	6.32	
16	SP4BDA	1563H	HL60X60X5		346	4.58	1.58	4	6.32	
17	SP4BDA	1564H	H8 THK.		306	62.80	1.35	16	21.60	
18	SP4BDA	1566	L50X50X5		858	3.79	3.25	2	6.50	
19	SP4BDA	1567	L50X50X5		858	3.79	3.25	2	6.50	
20	SP4BDA	1568	L45X45X4		1637	2.75	4.50	2	9.00	
21	SP4BDA	1569	L45X45X4		1637	2.75	4.50	2	9.00	
22	SP4BDA	1570	L50X50X4		1666	3.08	5.13	2	10.26	
23	SP4BDA	1571	L50X50X4		1666	3.08	5.13	2	10.26	
24	SP4BDA	1572	L45X45X4		2034	2.75	5.59	2	11.18	
25	SP4BDA	1573	L45X45X4		2034	2.75	5.59	2	11.18	
26	SP4BDA	1574	L65X65X4		2475	4.03	9.97	2	19.94	
27	SP4BDA	1575	L65X65X4		2475	4.03	9.97	2	19.94	
28	SP4BDA	1576	L60X60X4		2603	3.71	9.66	2	19.32	
29	SP4BDA	1577	L60X60X4		2603	3.71	9.66	2	19.32	
30	SP4BDA	1578	L65X65X5		3280	4.98	16.33	2	32.66	
31	SP4BDA	1579	L65X65X5		3280	4.98	16.33	2	32.66	
32	SP4BDA	1580	L65X65X4		3302	4.03	13.31	2	26.62	
33	SP4BDA	1581	L65X65X4		3302	4.03	13.31	2	26.62	
34	SP4BDA	1582	L75X75X6		4091	6.86	28.06	2	56.12	
35	SP4BDA	1583	L75X75X6		4091	6.86	28.06	2	56.12	
36	SP4BDA	1584	L70X70X5		4053	5.38	21.81	2	43.62	
37	SP4BDA	1585	L70X70X5		4053	5.38	21.81	2	43.62	
38	SP4BDA	1586	L50X50X4		2546	3.08	7.84	2	15.68	
39	SP4BDA	1587	L50X50X4		2546	3.08	7.84	2	15.68	
40	SP4BDA	1588	L65X65X4		2712	4.03	10.93	2	21.86	
41	SP4BDA	1589	L65X65X4		2712	4.03	10.93	2	21.86	
42	SP4BDA	1590	L60X60X4		4811	3.71	17.85	2	35.70	
43	SP4BDA	1591	L60X60X4		4811	3.71	17.85	2	35.70	
44	SP4BDA	1592	L65X65X4		2520	4.03	10.16	2	20.32	

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/DA/+3MBE

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

BILL OF MATERIALS

PART : +3.0M BODY EXTN. (ATT. TO BASIC BODY)

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	1593	L65X65X4	90	2520	4.03	10.16	2	20.32	
46	SP4BDA	1594	L50X50X4		4018	3.08	12.38	2	24.76	
47	SP4BDA	1595	L50X50X4		4018	3.08	12.38	2	24.76	
48	SP4BDA	1596	L45X45X4		1616	2.75	4.44	2	8.88	
49	SP4BDA	1597	L45X45X4		1616	2.75	4.44	2	8.88	
50	SP4BDA	1598	L60X60X4		2475	3.71	9.18	2	18.36	
51	SP4BDA	1599	L60X60X4		2475	3.71	9.18	2	18.36	
52	SP4BDA	1600	L50X50X4		2579	3.08	7.94	2	15.88	
53	SP4BDA	1601	L50X50X4		2579	3.08	7.94	2	15.88	
54	SP4BDA	1602H	HL100X100X7		6500	10.73	69.75	2	139.50	
55	SP4BDA	1603H	HL100X100X7		6500	10.73	69.75	2	139.50	
56	SP4BDA	1604H	HL100X100X7		7431	10.73	79.73	2	159.46	
57	SP4BDA	1605H	HL100X100X7		7431	10.73	79.73	2	159.46	
58	SP4BDA	1606H	HL75X75X6		376	6.86	2.58	2	5.16	
59	SP4BDA	1607H	HL75X75X6		376	6.86	2.58	2	5.16	
60	SP4BDA	1608H	H8 THK.		376	62.80	2.13	8	17.04	
61	SP4BDA	1610	L50X50X5		671	3.79	2.54	2	5.08	
62	SP4BDA	1611	L50X50X5		671	3.79	2.54	2	5.08	
63	SP4BDA	1612	L45X45X4		1641	2.75	4.51	2	9.02	
64	SP4BDA	1613	L45X45X4		1641	2.75	4.51	2	9.02	
65	SP4BDA	1614	L45X45X4		1293	2.75	3.56	2	7.12	
66	SP4BDA	1615	L45X45X4		1293	2.75	3.56	2	7.12	
67	SP4BDA	1616	L45X45X4		1903	2.75	5.23	2	10.46	
68	SP4BDA	1617	L45X45X4		1903	2.75	5.23	2	10.46	
69	SP4BDA	1618	L55X55X4		1914	3.40	6.51	2	13.02	
70	SP4BDA	1619	L55X55X4		1914	3.40	6.51	2	13.02	
71	SP4BDA	1620	L50X50X4		2269	3.08	6.99	2	13.98	
72	SP4BDA	1621	L50X50X4		2269	3.08	6.99	2	13.98	
73	SP4BDA	1622	L65X65X4		2535	4.03	10.22	2	20.44	
74	SP4BDA	1623	L65X65X4		2535	4.03	10.22	2	20.44	
75	SP4BDA	1624	L60X60X4		2764	3.71	10.25	2	20.50	
76	SP4BDA	1625	L60X60X4		2764	3.71	10.25	2	20.50	
77	SP4BDA	1626	L65X65X5		3156	4.98	15.72	2	31.44	
78	SP4BDA	1627	L65X65X5		3156	4.98	15.72	2	31.44	
79	SP4BDA	1628	L65X65X5		3329	4.98	16.58	2	33.16	
80	SP4BDA	1629	L65X65X5		3329	4.98	16.58	2	33.16	
81	SP4BDA	1630	L50X50X4		2468	3.08	7.60	2	15.20	
82	SP4BDA	1631	L50X50X4		2468	3.08	7.60	2	15.20	
83	SP4BDA	1632	L45X45X4		2104	2.75	5.79	2	11.58	
84	SP4BDA	1633	L45X45X4		2104	2.75	5.79	2	11.58	
85	SP4BDA	1634	L60X60X4		3889	3.71	14.43	2	28.86	
86	SP4BDA	1635	L60X60X4		3889	3.71	14.43	2	28.86	
87	SP4BDA	1636	L65X65X4		2164	4.03	8.72	2	17.44	
88	SP4BDA	1637	L65X65X4		2164	4.03	8.72	2	17.44	

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/DA/+3MBE

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

BILL OF MATERIALS

PART : +3.0M BODY EXTN. (ATT. TO BASIC BODY)

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	1638	L50X50X4		3754	3.08	11.56	2	23.12	
90	SP4BDA	1639	L50X50X4		3754	3.08	11.56	2	23.12	
91	SP4BDA	1640	L45X45X4		1612	2.75	4.43	2	8.86	
92	SP4BDA	1641	L45X45X4		1612	2.75	4.43	2	8.86	
93	SP4BDA	1642	L55X55X4		1914	3.40	6.51	2	13.02	
94	SP4BDA	1643	L55X55X4		1914	3.40	6.51	2	13.02	
95	SP4BDA	1644	L50X50X4		2257	3.08	6.95	2	13.90	
96	SP4BDA	1645	L50X50X4		2257	3.08	6.95	2	13.90	
97	SP4BDA	1646	L45X45X4		989	2.75	2.72	4	10.88	
98	SP4BDA	1647	L45X45X4		2136	2.75	5.87	2	11.74	
99	SP4BDA	1648	L45X45X4		2498	2.75	6.87	2	13.74	
100	SP4BDA	1649	L45X45X4		2849	2.75	7.83	2	15.66	
101	SP4BDA	1650	L45X45X4		3301	2.75	9.08	2	18.16	
102	SP4BDA	1651	L45X45X4		3713	2.75	10.21	2	20.42	
103	SP4BDA	1652	L45X45X4		4204	2.75	11.56	2	23.12	
104	SP4BDA	1653	L50X50X4		5724	3.08	17.63	2	35.26	
105	SP4BDA	1654	L55X55X4		6620	3.40	22.51	2	45.02	
106	SP4BDA	1655	L55X55X4		2560	3.40	8.70	2	17.40	
107	SP4BDA	1656	L45X45X4		1359	2.75	3.74	2	7.48	
108	SP4BDA	1657	L50X50X4		2406	3.08	7.41	2	14.82	
109	SP4BDA	1658	L45X45X4		1179	2.75	3.24	2	6.48	
110	SP4BDA	1659	L60X60X4		5000	3.71	18.55	2	37.10	
111	SP4BDA	1660	L60X60X4		3254	3.71	12.07	2	24.14	
112	SP4BDA	1661	L50X50X4		286	3.08	0.88	2	1.76	
113	SP4BDA	1662	5 THK.	50	256	39.25	0.50	8	4.00	
114	SP4BDA	1663	L55X55X4		4500	3.40	15.30	2	30.60	
115	SP4BDA	1664	L55X55X4		2815	3.40	9.57	2	19.14	
116	SP4BDA	1665	L45X45X4		286	2.75	0.79	2	1.58	
117	SP4BDA	1666	5 THK.	50	256	39.25	0.50	8	4.00	
118	SP4BDA	1667	L60X60X4		2695	3.71	10.00	2	20.00	
119	SP4BDA	1668	L45X45X4		1787	2.75	4.91	2	9.82	
120	SP4BDA	1669	L55X55X4		2410	3.40	8.19	2	16.38	
121	SP4BDA	1670	L45X45X4		1622	2.75	4.46	2	8.92	
122	SP4BDA	1671	5 THK.	120	160	39.25	0.75	20	15.00	
123	SP4BDA	1672	5 THK.	120	150	39.25	0.71	20	14.20	
124	SP4BDA	1673	5 THK.	120	160	39.25	0.75	4	3.00	
125	SP4BDA	1674	5 THK.	120	150	39.25	0.71	4	2.84	
126	SP4BDA	1675	5 THK.	120	212	39.25	1.00	2	2.00	
127	SP4BDA	1676	5 THK.	120	209	39.25	0.98	2	1.96	
128	SP4BDA	1677	5 THK.	120	201	39.25	0.95	2	1.90	
129	SP4BDA	1678	5 THK.	122	184	39.25	0.88	2	1.76	
130	SP4BDA	1679	L45X45X4		2136	2.75	5.87	2	11.74	
131	SP4BDA	1680	L45X45X4		2498	2.75	6.87	2	13.74	
132	SP4BDA	1681	L45X45X4		2849	2.75	7.83	2	15.66	

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/DA/+3MBE

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

BILL OF MATERIALS

PART : +3.0M BODY EXTN. (ATT. TO BASIC BODY)

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	1682	L45X45X4		3301	2.75	9.08	2	18.16	
134	SP4BDA	1683	L45X45X4		3713	2.75	10.21	2	20.42	
135	SP4BDA	1684	L45X45X4		4204	2.75	11.56	2	23.12	
136	SP4BDA	1685	L50X50X4		5724	3.08	17.63	2	35.26	
137	SP4BDA	1686	L55X55X4		6620	3.40	22.51	2	45.02	
138	SP4BDA	1687	L55X55X4		2560	3.40	8.70	2	17.40	
139	SP4BDA	1688	L45X45X4		1359	2.75	3.74	2	7.48	
140	SP4BDA	1689	L50X50X4		2406	3.08	7.41	2	14.82	
141	SP4BDA	1690	L45X45X4		1179	2.75	3.24	2	6.48	
142	SP4BDA	1691	L60X60X4		5000	3.71	18.55	2	37.10	
143	SP4BDA	1692	L60X60X4		3254	3.71	12.07	2	24.14	
144	SP4BDA	1693	L50X50X4		286	3.08	0.88	2	1.76	
145	SP4BDA	1694	L55X55X4		4500	3.40	15.30	2	30.60	
146	SP4BDA	1695	L55X55X4		2815	3.40	9.57	2	19.14	
147	SP4BDA	1696	L45X45X4		286	2.75	0.79	2	1.58	
148	SP4BDA	1697	L60X60X4		2695	3.71	10.00	2	20.00	
149	SP4BDA	1698	L45X45X4		1787	2.75	4.91	2	9.82	
150	SP4BDA	1699	L55X55X4		2410	3.40	8.19	2	16.38	
151	SP4BDA	1700	L45X45X4		1622	2.75	4.46	2	8.92	
152	SP4BDA	1701	5 THK.	120	212	39.25	1.00	2	2.00	
153	SP4BDA	1702	5 THK.	120	209	39.25	0.98	2	1.96	
154	SP4BDA	1703	5 THK.	120	201	39.25	0.95	2	1.90	
155	SP4BDA	1704	5 THK.	122	184	39.25	0.88	2	1.76	
156	SP4BDA	1705	6 THK.	110	190	47.10	0.98	2	1.96	
157	SP4BDA	1706	5 THK.	121	190	39.25	0.90	4	3.60	
158	SP4BDA	1707	5 THK.	125	203	39.25	1.00	4	4.00	
159	SP4BDA	1708	5 THK.	110	136	39.25	0.59	4	2.36	
TOTAL WT=									5131.02	

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	26	0.47	
6 THK. PACK WASHERS (For 16 Ø Bolt)	0.021	0	0.00	
TOTAL WT.			0.47	Kgs

				SKIPPER LIMITED
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)

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DA/+3MBE

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

BILL OF MATERIALS

PART : +3.0M BODY EXTN. (ATT. TO BASIC BODY)

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
--------	----------	--------------------------------	------------------	-------------	----------------	----------------	------------------	----------------	---------

WEIGHT OF STEEL MEMBERS

A) TOTAL WT. OF HT STEEL FAB. MEMBER	=	2866.74	Kgs
B) TOTAL WT. OF MILD STEEL FAB. MEMBER	=	2264.28	Kgs
C) TOTAL WT. OF PACK WASHERS	=	0.47	Kgs
GRAND TOTAL WT. OF FAB. MEMBER WITH PACK WASHERS (A+B+C)	=	5131.49	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	228	27.13
HRH BOLT / NUT FOR M16X40	0.126	224	28.22
HRH BOLT / NUT FOR M16X45	0.134	382	51.19
HRH BOLT / NUT FOR M16X50	0.142	0	0.00
HRH BOLT / NUT FOR M16X55	0.150	0	0.00
HRH BOLT / NUT FOR M16X60	0.158	188	29.70
HRH BOLT / NUT FOR M16X65	0.164	4	0.66
HRH BOLT / NUT FOR M16X70	0.173	0	0.00
MS STD. SPR. WASHERS FOR M16 BOLTS	0.009	1026	9.23
STEP BOLTS OF 16X175MM DIA WITH 2 NUTS 1 S.W	0.374	48	17.95
TOTAL WT. OF HEXAGONAL BOLTS / NUTS , SPRING WASHERS STEP BOLT	=	164.08	Kgs

SUMMARY OF WEIGHTS

A) WT. OF MS MEMBERS	=	2264.28	Kgs
B) WT. OF PACK WASHERS	=	0.47	Kgs
C) WT. OF HT MEMBERS	=	2866.74	Kgs
D) WT. OF FAB MEMBERS (A+B+C)	=	5131.49	Kgs
E) WT. OF BOLT & NUTS	=	164.08	Kgs
F) TOTAL	=	5295.57	Kgs

				SKIPPER LIMITED
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 : +3.0M BODY EXTN. (ATT. TO BASIC BODY)

BOM NO. SL/PGCIL/400KV/BUTW-GRKH/DA/+3MBE

SECTION ABSTRACT

MILD STEEL	WEIGHT (Kg)	HIGH TENSILE	WEIGHT (Kg)	MS. PLATE	WEIGHT
L40X40X3		HL45X30X4		2 THK.	
L40X40X4		HL45X30X5		3 THK.	
L40X40X5		HL45X45X4		4 THK.	
L40X40X6		HL45X45X5		5 THK.	68.24
L45X30X4		HL50X50X4		6 THK.	1.96
L45X30X5		HL50X50X5		8 THK.	
L45X45X4	437.32	HL55X55X4		10 THK.	
L45X45X3		HL55X55X5		14 THK.	
L45X45X5		HL60X60X4		32 THK.	
L45X45X6		HL60X60X5	12.64	20 THK.	
L50X50X3		HL60X60X6		22 THK.	
L50X50X4	369.24	HL65X65X4			
L50X50X5	23.16	HL65X65X5		TOTAL MS PLT.	70.20
L50X50X6		HL65X65X6			
L55X55X4	309.16	HL70X70X5		HT. PLATE	WEIGHT
L55X55X5		HL70X70X6		H6 THK.	
L55X55X6		HL75X75X5		H5 THK.	
L55X55X8		HL75X75X6	10.32	H8 THK.	38.64
L60X60X4	407.96	HL80X80X6	445.28	H10 THK.	
L60X60X5		HL80X80X8		H12 THK.	118.30
L60X60X6		HL90X90X6		H14 THK.	
L65X65X4	253.24	HL90X90X7		H16 THK.	
L65X65X5	194.52	HL90X90X8		H20 THK.	
L65X65X6		HL100X100X6		H18 THK.	
L80X80X5		HL100X100X7	597.92		
L70X70X5	87.24	HL100X100X8		TOTAL HT PLT.	156.94
L70X70X6		HL100X100X10			
L75X75X5		HL110X110X8			
L75X75X6	112.24	HL110X110X10			
L80X80X6		HL110X110X12			
L80X80X8		HL80X80X5			
L90X90X5		HL120X120X8			
L90X90X6		HL120X120X10			
L90X90X7		HL120X120X12			
L90X90X8		HL130X130X10	66.56		
L100X100X6		HL130X130X12			
L100X100X7		HL150X150X10			
L100X100X8		HL150X150X12			
L100X100X10		HL150X150X14	1577.08		
L150X150X20		HL90X90X5			
L200X200X16		HL110X110X6			
L200X200X20		HL110X110X7			
		HL120X120X7			
		HL200X200X12			
		HL200X200X17			
		HL120X120X9			
TOTAL	2194.08	TOTAL	2709.80		
		GRAND TOTAL =	5131.02		