

संदर्भ/Ref : CC-ENGG-C2021001-1001422-T14221-4523-BM BTB DC

Date : 26/04/2024

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/DC/BB
Orgn. Drg. No. : C2021001-1001422-T14221-4523-BM BTB DC
Revision No. : 00
Drg. Title : BILL OF MATERIAL FOR TT DC BTB FOR 400 kV D/C WZ-5 (ACSR MOOSE) TL
App. Category : CAT-I
Release Date : 26/04/2024



Scan to verify

Comments : ok**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/DC/BB

NO. OF SHEET : 21

POWER GRID CORPORATION OF INDIA LTD.

(A Government of India Enterprise)

BILL OF MATERIALSINITIAL / FINAL
(GALVANIZED)

STRUCTURE UNIT : 400KV D/C "DC(0°-30°)/MKD "QDC5"

PART : BASIC BODY

REF.DRG.NO. : C:ENGG:TL:4523-4ACSR-M-P-03 (SHEET 1/9 TO 9/9)

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	
SP4BDC XXX	FOR M.S
SP4BDC 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 BASIC BODY	
1	WT.OF ALL (HT) MEMBERS IN KGS.	21357.47	
2	WT.OF ALL (MS) MEMBERS IN KGS.(INCL. PACK WASHERS)	3960.00	
3	WT.OF BOLT & NUTS IN KGS.	1047.58	
	TOTAL WT. OF STRUCTURES IN KGS.	26365.05	
A	PROTO CORRECTED & SUCCESSFULLY TESTED AT M/s SKIPPER LTD. TEST BED DATED 19.04.24		22.04.2024
0	FIRST ISSUE		18.10.2023
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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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	SP4BDC	50H	HL80X80X6		6148	7.36	45.25	4	181.00	
2	SP4BDC	51H	HL80X80X6		7000	7.36	51.52	4	206.08	
3	SP4BDC	52H	HL65X65X5		286	4.98	1.42	4	5.68	
4	SP4BDC	53H	H6 THK.	60	286	47.10	0.81	8	6.48	
5	SP4BDC	54H	H12 THK.	397	473	94.20	17.69	4	70.76	
6	SP4BDC	55H	HL75X75X5		7400	5.77	42.70	4	170.80	
7	SP4BDC	56H	HL75X75X5		7400	5.77	42.70	4	170.80	
8	SP4BDC	57H	HL65X65X4		4426	4.03	17.84	4	71.36	
9	SP4BDC	58	L45X45X4		1058	2.75	2.91	4	11.64	
10	SP4BDC	59	L45X45X4		823	2.75	2.26	4	9.04	
11	SP4BDC	60	L45X45X4		823	2.75	2.26	4	9.04	
12	SP4BDC	61	L45X45X4		1277	2.75	3.51	4	14.04	
13	SP4BDC	62	L45X45X4		1277	2.75	3.51	4	14.04	
14	SP4BDC	63H	HL45X45X4		1595	2.75	4.39	4	17.56	
15	SP4BDC	64H	HL45X45X4		1595	2.75	4.39	4	17.56	
16	SP4BDC	65H	HL65X65X4		2935	4.03	11.83	4	47.32	
17	SP4BDC	67H	HL80X80X5		592	6.17	3.65	4	14.60	
18	SP4BDC	68H	HL80X80X5		484	6.17	2.99	4	11.96	
19	SP4BDC	69	6 THK.	160	139	47.10	1.05	4	4.20	
20	SP4BDC	70H	H5 THK.	110	125	39.25	0.54	8	4.32	
21	SP4BDC	71H	H5 THK.	105	105	39.25	0.43	4	1.72	
22	SP4BDC	72H	H5 THK.	113	240	39.25	1.06	4	4.24	
23	SP4BDC	73H	H5 THK.	105	195	39.25	0.80	8	6.40	
24	SP4BDC	100H	HL250X250X18		5610	68.10	382.04	2	764.08	
25	SP4BDC	101H	HL250X250X18		5610	68.10	382.04	2	764.08	
26	SP4BDC	102H	HL200X200X15		810	45.60	36.94	4	147.76	
27	SP4BDC	103H	H12 THK.	200	810	94.20	15.26	8	122.08	
28	SP4BDC	104H	HL90X90X5		2694	6.97	18.78	2	37.56	
29	SP4BDC	105H	HL90X90X5		2694	6.97	18.78	2	37.56	
30	SP4BDC	106H	HL90X90X5		2694	6.97	18.78	2	37.56	
31	SP4BDC	107H	HL90X90X5		2694	6.97	18.78	2	37.56	
32	SP4BDC	108H	HL80X80X5		2694	6.17	16.62	2	33.24	
33	SP4BDC	109H	HL80X80X5		2694	6.17	16.62	2	33.24	
34	SP4BDC	110H	HL80X80X5		2694	6.17	16.62	2	33.24	
35	SP4BDC	111H	HL80X80X5		2694	6.17	16.62	2	33.24	
36	SP4BDC	112H	HL90X90X5		4603	6.97	32.08	2	64.16	
37	SP4BDC	113H	HL90X90X5		4603	6.97	32.08	2	64.16	
38	SP4BDC	114H	HL90X90X5		4604	6.97	32.09	2	64.18	
39	SP4BDC	115H	HL90X90X5		4604	6.97	32.09	2	64.18	
40	SP4BDC	116H	HL80X80X5		4603	6.17	28.40	2	56.80	
41	SP4BDC	117H	HL80X80X5		4603	6.17	28.40	2	56.80	
42	SP4BDC	118H	HL80X80X5		4604	6.17	28.41	2	56.82	
43	SP4BDC	119H	HL80X80X5		4604	6.17	28.41	2	56.82	
44	SP4BDC	120H	HL65X65X5		286	4.98	1.42	4	5.68	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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	SP4BDC	121H	HL65X65X5		286	4.98	1.42	4	5.68	
46	SP4BDC	122H	H12 THK.	50	286	94.20	1.35	8	10.80	
47	SP4BDC	123H	H6 THK.	142	286	47.10	1.91	8	15.28	
48	SP4BDC	124H	HL70X70X5		286	5.38	1.54	4	6.16	
49	SP4BDC	125H	HL70X70X5		286	5.38	1.54	4	6.16	
50	SP4BDC	126H	HL60X60X4		2013	3.71	7.47	4	29.88	
51	SP4BDC	127H	HL60X60X4		2013	3.71	7.47	4	29.88	
52	SP4BDC	128	L45X30X4		962	2.27	2.18	4	8.72	
53	SP4BDC	129	L45X30X4		962	2.27	2.18	4	8.72	
54	SP4BDC	130H	HL65X65X4		3278	4.03	13.21	4	52.84	
55	SP4BDC	131H	HL65X65X4		3278	4.03	13.21	4	52.84	
56	SP4BDC	132	L50X50X4		2369	3.08	7.30	4	29.20	
57	SP4BDC	133	L50X50X4		2369	3.08	7.30	4	29.20	
58	SP4BDC	134H	HL75X75X5		4361	5.77	25.16	4	100.64	
59	SP4BDC	135H	HL75X75X5		4361	5.77	25.16	4	100.64	
60	SP4BDC	136H	HL65X65X5		2453	4.98	12.22	4	48.88	
61	SP4BDC	137H	HL65X65X5		2453	4.98	12.22	4	48.88	
62	SP4BDC	138	L45X45X4		1880	2.75	5.17	4	20.68	
63	SP4BDC	139	L45X45X4		1880	2.75	5.17	4	20.68	
64	SP4BDC	140H	HL65X65X5		2177	4.98	10.84	4	43.36	
65	SP4BDC	141H	HL65X65X5		2177	4.98	10.84	4	43.36	
66	SP4BDC	142	6 THK.	120	192	47.10	1.09	4	4.36	
67	SP4BDC	143	L50X50X4		4664	3.08	14.37	4	57.48	
68	SP4BDC	144	L50X50X4		4664	3.08	14.37	4	57.48	
69	SP4BDC	145	L45X30X4		1220	2.27	2.77	4	11.08	
70	SP4BDC	146	L45X30X4		1220	2.27	2.77	4	11.08	
71	SP4BDC	147	L65X65X4		6129	4.03	24.70	4	98.80	
72	SP4BDC	148	L45X45X4		2451	2.75	6.74	4	26.96	
73	SP4BDC	149	L45X45X4		2451	2.75	6.74	4	26.96	
74	SP4BDC	150	L50X50X4		3040	3.08	9.36	4	37.44	
75	SP4BDC	151	5 THK.	120	275	39.25	1.30	4	5.20	
76	SP4BDC	152	5 THK.	120	275	39.25	1.30	4	5.20	
77	SP4BDC	153	5 THK.	130	299	39.25	1.53	4	6.12	
78	SP4BDC	154	5 THK.	130	299	39.25	1.53	4	6.12	
79	SP4BDC	155	5 THK.	120	303	39.25	1.43	4	5.72	
80	SP4BDC	156	5 THK.	120	303	39.25	1.43	4	5.72	
81	SP4BDC	157	8 THK.	100	142	62.80	0.89	8	7.12	
82	SP4BDC	158	5 THK.	160	420	39.25	2.64	4	10.56	
83	SP4BDC	180H	HL250X250X18		5600	68.10	381.36	2	762.72	
84	SP4BDC	181H	HL250X250X18		5600	68.10	381.36	2	762.72	
85	SP4BDC	182H	HL250X250X18		3043	68.10	207.23	2	414.46	
86	SP4BDC	183H	HL250X250X18		3043	68.10	207.23	2	414.46	
87	SP4BDC	184H	HL200X200X15		810	45.60	36.94	8	295.52	
88	SP4BDC	185H	H12 THK.	200	810	94.20	15.26	16	244.16	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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	SP4BDC	186H	HL100X100X6		5400	9.26	50.00	2	100.00	
90	SP4BDC	187H	HL100X100X6		5400	9.26	50.00	2	100.00	
91	SP4BDC	188H	HL100X100X6		5400	9.26	50.00	2	100.00	
92	SP4BDC	189H	HL100X100X6		5400	9.26	50.00	2	100.00	
93	SP4BDC	190H	HL100X100X6		1987	9.26	18.40	4	73.60	
94	SP4BDC	191H	HL100X100X6		4203	9.26	38.92	2	77.84	
95	SP4BDC	192H	HL100X100X6		6318	9.26	58.50	2	117.00	
96	SP4BDC	193H	HL100X100X6		6319	9.26	58.51	2	117.02	
97	SP4BDC	194H	HL100X100X6		4204	9.26	38.93	2	77.86	
98	SP4BDC	195H	HL80X80X5		346	6.17	2.13	4	8.52	
99	SP4BDC	196H	HL80X80X5		346	6.17	2.13	4	8.52	
100	SP4BDC	197H	H12 THK.	50	346	94.20	1.63	8	13.04	
101	SP4BDC	198AH	H6 THK.	152	346	47.10	2.48	4	9.92	
102	SP4BDC	198H	H6 THK.	162	346	47.10	2.64	4	10.56	
103	SP4BDC	199H	HL75X75X6		346	6.86	2.37	4	9.48	
104	SP4BDC	200H	HL75X75X6		346	6.86	2.37	4	9.48	
105	SP4BDC	201H	HL50X50X4		1350	3.08	4.16	2	8.32	
106	SP4BDC	202H	HL50X50X4		1350	3.08	4.16	2	8.32	
107	SP4BDC	203H	HL65X65X5		2622	4.98	13.06	2	26.12	
108	SP4BDC	204H	HL65X65X5		2622	4.98	13.06	2	26.12	
109	SP4BDC	205H	HL65X65X5		2773	4.98	13.81	2	27.62	
110	SP4BDC	206H	HL65X65X5		2773	4.98	13.81	2	27.62	
111	SP4BDC	207	L45X45X4		3235	2.75	8.90	2	17.80	
112	SP4BDC	208	L45X45X4		3235	2.75	8.90	2	17.80	
113	SP4BDC	209H	HL45X45X4		1525	2.75	4.19	4	16.76	
114	SP4BDC	210H	HL65X65X5		2522	4.98	12.56	2	25.12	
115	SP4BDC	211H	HL65X65X5		2522	4.98	12.56	2	25.12	
116	SP4BDC	212H	HL90X90X7		5300	9.61	50.93	2	101.86	
117	SP4BDC	213H	HL90X90X7		5300	9.61	50.93	2	101.86	
118	SP4BDC	214H	HL90X90X7		5300	9.61	50.93	2	101.86	
119	SP4BDC	215H	HL90X90X7		5300	9.61	50.93	2	101.86	
120	SP4BDC	216H	HL90X90X7		2015	9.61	19.36	4	77.44	
121	SP4BDC	217H	HL90X90X7		4217	9.61	40.53	2	81.06	
122	SP4BDC	218H	HL90X90X7		6343	9.61	60.96	2	121.92	
123	SP4BDC	219H	HL90X90X7		6344	9.61	60.97	2	121.94	
124	SP4BDC	220H	HL90X90X7		4218	9.61	40.53	2	81.06	
125	SP4BDC	221H	HL50X50X4		1373	3.08	4.23	2	8.46	
126	SP4BDC	222H	HL50X50X4		1373	3.08	4.23	2	8.46	
127	SP4BDC	223H	HL65X65X5		2604	4.98	12.97	2	25.94	
128	SP4BDC	224H	HL65X65X5		2604	4.98	12.97	2	25.94	
129	SP4BDC	225H	HL65X65X5		2822	4.98	14.05	2	28.10	
130	SP4BDC	226H	HL65X65X5		2822	4.98	14.05	2	28.10	
131	SP4BDC	227	L45X45X4		3181	2.75	8.75	2	17.50	
132	SP4BDC	228	L45X45X4		3181	2.75	8.75	2	17.50	

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. SI/PGCIL/400KV/BUTW-GRKH/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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	SP4BDC	229H	HL45X45X4		1543	2.75	4.24	4	16.96	
134	SP4BDC	230H	HL65X65X5		2442	4.98	12.16	2	24.32	
135	SP4BDC	231H	HL65X65X5		2442	4.98	12.16	2	24.32	
136	SP4BDC	232H	HL130X130X11		5900	21.70	128.03	2	256.06	
137	SP4BDC	233H	HL130X130X10		6300	19.72	124.24	1	124.24	
138	SP4BDC	233XH	HL130X130X10		6321	19.72	124.65	1	124.65	
139	SP4BDC	234	5 THK.	110	139	39.25	0.60	2	1.20	
140	SP4BDC	235H	H12 THK.	484	565	94.20	25.76	2	51.52	
141	SP4BDC	236H	H12 THK.	484	565	94.20	25.76	2	51.52	
142	SP4BDC	237H	H10 THK.	309	552	78.50	13.39	2	26.78	
143	SP4BDC	238H	H10 THK.	309	552	78.50	13.39	2	26.78	
144	SP4BDC	239H	H12 THK.	389	345	94.20	12.64	2	25.28	
145	SP4BDC	240H	H12 THK.	335	353	94.20	11.14	2	22.28	
146	SP4BDC	241H	H6 THK.	115	135	47.10	0.73	4	2.92	
147	SP4BDC	242H	H6 THK.	180	337	47.10	2.86	4	11.44	
148	SP4BDC	243	6 THK.	50	337	47.10	0.79	4	3.16	
149	SP4BDC	244H	H6 THK.	125	125	47.10	0.74	4	2.96	
150	SP4BDC	245H	H6 THK.	125	130	47.10	0.77	4	3.08	
151	SP4BDC	246H	H6 THK.	180	330	47.10	2.80	4	11.20	
152	SP4BDC	247	6 THK.	50	330	47.10	0.78	4	3.12	
153	SP4BDC	248H	H6 THK.	125	120	47.10	0.71	4	2.84	
154	SP4BDC	249	6 THK.	120	192	47.10	1.09	4	4.36	
155	SP4BDC	250	6 THK.	120	192	47.10	1.09	2	2.18	
156	SP4BDC	251H	HL45X45X4		1613	2.75	4.44	4	17.76	
157	SP4BDC	252	L45X45X4		3387	2.75	9.31	2	18.62	
158	SP4BDC	252X	L45X45X4		3387	2.75	9.31	2	18.62	
159	SP4BDC	253	L45X45X4		3433	2.75	9.44	2	18.88	
160	SP4BDC	253X	L45X45X4		3433	2.75	9.44	2	18.88	
161	SP4BDC	254	L55X55X4		4607	3.40	15.66	2	31.32	
162	SP4BDC	254X	L55X55X4		4607	3.40	15.66	2	31.32	
163	SP4BDC	255	L55X55X4		4659	3.40	15.84	2	31.68	
164	SP4BDC	255X	L55X55X4		4659	3.40	15.84	2	31.68	
165	SP4BDC	256	8 THK.	100	162	62.80	1.02	8	8.16	
166	SP4BDC	257	8 THK.	100	152	62.80	0.95	8	7.60	
167	SP4BDC	258H	H5 THK.	110	160	39.25	0.69	4	2.76	
168	SP4BDC	259H	H5 THK.	110	155	39.25	0.67	4	2.68	
169	SP4BDC	260	5 THK.	140	206	39.25	1.13	2	2.26	
170	SP4BDC	260X	5 THK.	140	206	39.25	1.13	2	2.26	
171	SP4BDC	261	5 THK.	140	201	39.25	1.10	2	2.20	
172	SP4BDC	261X	5 THK.	140	201	39.25	1.10	2	2.20	
173	SP4BDC	262	5 THK.	110	301	39.25	1.30	2	2.60	
174	SP4BDC	262X	5 THK.	110	301	39.25	1.30	2	2.60	
175	SP4BDC	263	5 THK.	110	285	39.25	1.23	2	2.46	
176	SP4BDC	263X	5 THK.	110	285	39.25	1.23	2	2.46	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
177	SP4BDC	264	L45X45X4		4098	2.75	11.27	2	22.54	
178	SP4BDC	264X	L45X45X4		4098	2.75	11.27	2	22.54	
179	SP4BDC	265	L45X45X4		4005	2.75	11.01	2	22.02	
180	SP4BDC	265X	L45X45X4		4005	2.75	11.01	2	22.02	
181	SP4BDC	266	L55X55X4		2641	3.40	8.98	2	17.96	
182	SP4BDC	266X	L55X55X4		2641	3.40	8.98	2	17.96	
183	SP4BDC	267	5 THK.	115	291	39.25	1.31	2	2.62	
184	SP4BDC	267X	5 THK.	115	291	39.25	1.31	2	2.62	
185	SP4BDC	268	5 THK.	114	278	39.25	1.24	2	2.48	
186	SP4BDC	268X	5 THK.	114	278	39.25	1.24	2	2.48	
187	SP4BDC	269	5 THK.	110	272	39.25	1.17	2	2.34	
188	SP4BDC	269X	5 THK.	110	272	39.25	1.17	2	2.34	
189	SP4BDC	270	5 THK.	110	257	39.25	1.11	2	2.22	
190	SP4BDC	270X	5 THK.	110	257	39.25	1.11	2	2.22	
191	SP4BDC	271	12 THK.	95	250	94.20	2.24	4	8.96	
192	SP4BDC	272	6 THK.	95	250	47.10	1.12	4	4.48	
193	SP4BDC	300H	HL200X200X15		4300	45.60	196.08	2	392.16	
194	SP4BDC	301H	HL200X200X15		4300	45.60	196.08	2	392.16	
195	SP4BDC	302H	HL150X150X15		3900	33.72	131.51	2	263.02	
196	SP4BDC	303H	HL150X150X15		3900	33.72	131.51	2	263.02	
197	SP4BDC	304H	HL150X150X15		670	33.72	22.59	4	90.36	
198	SP4BDC	305H	H12 THK.	180	670	94.20	11.36	8	90.88	
199	SP4BDC	306	3 THK.	110	330	23.55	0.85	8	6.80	
200	SP4BDC	307H	HL130X130X12		560	23.45	13.13	4	52.52	
201	SP4BDC	308H	H10 THK.	130	560	78.50	5.71	8	45.68	
202	SP4BDC	309H	HL90X90X7		3014	9.61	28.96	2	57.92	
203	SP4BDC	310H	HL90X90X7		3015	9.61	28.97	2	57.94	
204	SP4BDC	311H	HL90X90X7		3625	9.61	34.84	2	69.68	
205	SP4BDC	312H	HL90X90X7		3624	9.61	34.83	2	69.66	
206	SP4BDC	313H	HL100X100X7		3308	10.73	35.49	2	70.98	
207	SP4BDC	314H	HL100X100X7		3307	10.73	35.48	2	70.96	
208	SP4BDC	315H	HL100X100X7		4062	10.73	43.59	2	87.18	
209	SP4BDC	316H	HL100X100X7		4063	10.73	43.60	2	87.20	
210	SP4BDC	317AH	HL110X110X7		3284	11.80	38.75	2	77.50	
211	SP4BDC	317H	HL110X110X7		3284	11.80	38.75	2	77.50	
212	SP4BDC	318H	HL110X110X7		2984	11.80	35.21	2	70.42	
213	SP4BDC	319H	HL110X110X7		2985	11.80	35.22	2	70.44	
214	SP4BDC	320H	HL110X110X7		6436	11.80	75.94	2	151.88	
215	SP4BDC	321H	HL110X110X7		6435	11.80	75.93	2	151.86	
216	SP4BDC	322H	HL80X80X7		3102	8.49	26.34	2	52.68	
217	SP4BDC	323H	HL80X80X7		3103	8.49	26.34	2	52.68	
218	SP4BDC	324H	HL80X80X7		3661	8.49	31.08	2	62.16	
219	SP4BDC	325H	HL80X80X7		3660	8.49	31.07	2	62.14	
220	SP4BDC	326H	HL100X100X6		3343	9.26	30.96	2	61.92	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
221	SP4BDC	327H	HL100X100X6		3342	9.26	30.95	2	61.90	
222	SP4BDC	328H	HL100X100X6		4042	9.26	37.43	2	74.86	
223	SP4BDC	329H	HL100X100X6		4043	9.26	37.44	2	74.88	
224	SP4BDC	330AH	HL90X90X7		3265	9.61	31.38	2	62.76	
225	SP4BDC	330H	HL90X90X7		3265	9.61	31.38	2	62.76	
226	SP4BDC	331H	HL90X90X7		2981	9.61	28.65	2	57.30	
227	SP4BDC	332H	HL90X90X7		2982	9.61	28.66	2	57.32	
228	SP4BDC	333H	HL90X90X7		6390	9.61	61.41	2	122.82	
229	SP4BDC	334H	HL90X90X7		6389	9.61	61.40	2	122.80	
230	SP4BDC	335	L50X50X4		2279	3.08	7.02	2	14.04	
231	SP4BDC	336	L50X50X4		2255	3.08	6.95	2	13.90	
232	SP4BDC	337H	HL55X55X4		1123	3.40	3.82	2	7.64	
233	SP4BDC	338H	HL55X55X4		1123	3.40	3.82	2	7.64	
234	SP4BDC	339H	HL50X50X4		1530	3.08	4.71	2	9.42	
235	SP4BDC	340H	HL50X50X4		1530	3.08	4.71	2	9.42	
236	SP4BDC	341H	H6 THK.	110	120	47.10	0.62	4	2.48	
237	SP4BDC	342H	H6 THK.	110	125	47.10	0.65	4	2.60	
238	SP4BDC	343H	HL80X80X6		346	7.36	2.55	4	10.20	
239	SP4BDC	344H	H12 THK.	70	346	94.20	2.28	4	9.12	
240	SP4BDC	345H	H6 THK.	162	346	47.10	2.64	4	10.56	
241	SP4BDC	346H	HL80X80X6		346	7.36	2.55	4	10.20	
242	SP4BDC	347H	H12 THK.	70	346	94.20	2.28	4	9.12	
243	SP4BDC	348H	H6 THK.	162	346	47.10	2.64	4	10.56	
244	SP4BDC	351	L45X30X4		1105	2.27	2.51	2	5.02	
245	SP4BDC	352	L45X30X4		1105	2.27	2.51	2	5.02	
246	SP4BDC	353H	HL50X50X4		1786	3.08	5.50	2	11.00	
247	SP4BDC	354H	HL50X50X4		1786	3.08	5.50	2	11.00	
248	SP4BDC	355H	HL55X55X4		1442	3.40	4.90	2	9.80	
249	SP4BDC	356H	HL55X55X4		1442	3.40	4.90	2	9.80	
250	SP4BDC	357	L45X45X4		1185	2.75	3.26	2	6.52	
251	SP4BDC	358	L45X45X4		1185	2.75	3.26	2	6.52	
252	SP4BDC	359	L55X55X4		1906	3.40	6.48	2	12.96	
253	SP4BDC	360	L55X55X4		1906	3.40	6.48	2	12.96	
254	SP4BDC	361	L45X45X4		1799	2.75	4.95	2	9.90	
255	SP4BDC	362	L45X45X4		1799	2.75	4.95	2	9.90	
256	SP4BDC	363	L45X45X4		1344	2.75	3.70	2	7.40	
257	SP4BDC	364	L45X45X4		1344	2.75	3.70	2	7.40	
258	SP4BDC	365H	HL55X55X4		1303	3.40	4.43	2	8.86	
259	SP4BDC	366H	HL55X55X4		1303	3.40	4.43	2	8.86	
260	SP4BDC	367H	HL50X50X4		1596	3.08	4.92	2	9.84	
261	SP4BDC	368H	HL50X50X4		1596	3.08	4.92	2	9.84	
262	SP4BDC	369	L45X30X4		1080	2.27	2.45	2	4.90	
263	SP4BDC	370	L45X30X4		1080	2.27	2.45	2	4.90	
264	SP4BDC	371H	HL50X50X4		1773	3.08	5.46	2	10.92	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
265	SP4BDC	372H	HL50X50X4		1773	3.08	5.46	2	10.92	
266	SP4BDC	373H	HL55X55X4		1441	3.40	4.90	2	9.80	
267	SP4BDC	374H	HL55X55X4		1441	3.40	4.90	2	9.80	
268	SP4BDC	375	L45X45X4		1217	2.75	3.35	2	6.70	
269	SP4BDC	376	L45X45X4		1217	2.75	3.35	2	6.70	
270	SP4BDC	377	L55X55X4		1933	3.40	6.57	2	13.14	
271	SP4BDC	378	L55X55X4		1933	3.40	6.57	2	13.14	
272	SP4BDC	379	L45X45X4		1767	2.75	4.86	2	9.72	
273	SP4BDC	380	L45X45X4		1767	2.75	4.86	2	9.72	
274	SP4BDC	381	L45X45X4		1333	2.75	3.67	2	7.34	
275	SP4BDC	382	L45X45X4		1333	2.75	3.67	2	7.34	
276	SP4BDC	383H	HL90X90X6		2621	8.32	21.81	2	43.62	
277	SP4BDC	383XH	HL90X90X6		2621	8.32	21.81	2	43.62	
278	SP4BDC	384H	HL110X110X9		4900	15.00	73.50	1	73.50	
279	SP4BDC	384XH	HL110X110X9		4900	15.00	73.50	1	73.50	
280	SP4BDC	385	L90X90X5		2671	6.97	18.62	2	37.24	
281	SP4BDC	385X	L90X90X5		2671	6.97	18.62	2	37.24	
282	SP4BDC	386XH	HL75X75X5		5270	5.77	30.41	1	30.41	
283	SP4BDC	386H	HL75X75X5		5250	5.77	30.29	1	30.29	
284	SP4BDC	387H	H12 THK.	408	832	94.20	31.98	2	63.96	
285	SP4BDC	388H	H12 THK.	380	483	94.20	17.29	2	34.58	
286	SP4BDC	389H	H12 THK.	398	541	94.20	20.28	2	40.56	
287	SP4BDC	390H	H12 THK.	325	432	94.20	13.23	2	26.46	
288	SP4BDC	391H	H12 THK.	410	577	94.20	22.28	2	44.56	
289	SP4BDC	392H	H12 THK.	322	577	94.20	17.50	2	35.00	
290	SP4BDC	393	6 THK.	130	150	47.10	0.92	2	1.84	
291	SP4BDC	394H	H10 THK.	175	535	78.50	7.35	4	29.40	
292	SP4BDC	395	6 THK.	135	258	47.10	1.64	4	6.56	
293	SP4BDC	396	6 THK.	50	258	47.10	0.61	4	2.44	
294	SP4BDC	397	6 THK.	120	230	47.10	1.30	4	5.20	
295	SP4BDC	398	6 THK.	50	230	47.10	0.54	4	2.16	
296	SP4BDC	399	6 THK.	120	187	47.10	1.06	2	2.12	
297	SP4BDC	400	6 THK.	140	175	47.10	1.15	2	2.30	
298	SP4BDC	401	6 THK.	150	148	47.10	1.05	2	2.10	
299	SP4BDC	402H	HL45X45X4		1596	2.75	4.39	4	17.56	
300	SP4BDC	403	L45X45X4		2860	2.75	7.87	2	15.74	
301	SP4BDC	403X	L45X45X4		2860	2.75	7.87	2	15.74	
302	SP4BDC	404	L45X45X4		2866	2.75	7.88	2	15.76	
303	SP4BDC	404X	L45X45X4		2866	2.75	7.88	2	15.76	
304	SP4BDC	405	8 THK.	100	162	62.80	1.02	4	4.08	
305	SP4BDC	406	8 THK.	100	148	62.80	0.93	4	3.72	
306	SP4BDC	407H	H5 THK.	110	150	39.25	0.65	4	2.60	
307	SP4BDC	408H	H5 THK.	110	147	39.25	0.63	4	2.52	
308	SP4BDC	409	5 THK.	110	262	39.25	1.13	2	2.26	

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. SI/PGCIL/400KV/BUTW-GRKH/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
309	SP4BDC	409X	5 THK.	110	262	39.25	1.13	2	2.26	
310	SP4BDC	410	5 THK.	110	245	39.25	1.06	2	2.12	
311	SP4BDC	410X	5 THK.	110	245	39.25	1.06	2	2.12	
312	SP4BDC	411H	HL45X45X4		1890	2.75	5.20	4	20.80	
313	SP4BDC	412	5 THK.	100	162	39.25	0.64	8	5.12	
314	SP4BDC	412A	8 THK.	100	162	62.80	1.02	8	8.16	
315	SP4BDC	413H	H5 THK.	110	272	39.25	1.17	8	9.36	
316	SP4BDC	414H	HL45X45X4		1708	2.75	4.70	4	18.80	
317	SP4BDC	415	L45X45X4		2616	2.75	7.19	2	14.38	
318	SP4BDC	416	L45X45X4		2599	2.75	7.15	2	14.30	
319	SP4BDC	415X	L45X45X4		2616	2.75	7.19	2	14.38	
320	SP4BDC	416X	L45X45X4		2599	2.75	7.15	2	14.30	
321	SP4BDC	417	8 THK.	110	175	62.80	1.21	4	4.84	
322	SP4BDC	418	8 THK.	100	165	62.80	1.04	4	4.16	
323	SP4BDC	419H	H5 THK.	110	165	39.25	0.71	4	2.84	
324	SP4BDC	420H	H5 THK.	110	150	39.25	0.65	4	2.60	
325	SP4BDC	421	5 THK.	110	287	39.25	1.24	4	4.96	
326	SP4BDC	422	5 THK.	110	262	39.25	1.13	4	4.52	
327	SP4BDC	423H	HL45X45X4		1722	2.75	4.74	4	18.96	
328	SP4BDC	424	5 THK.	100	172	39.25	0.68	4	2.72	
329	SP4BDC	425	5 THK.	100	162	39.25	0.64	4	2.56	
330	SP4BDC	424A	8 THK.	100	172	62.80	1.08	4	4.32	
331	SP4BDC	425A	8 THK.	100	162	62.80	1.02	4	4.08	
332	SP4BDC	426H	H5 THK.	110	324	39.25	1.40	2	2.80	
333	SP4BDC	426AH	H5 THK.	110	324	39.25	1.40	2	2.80	
333	SP4BDC	427H	H5 THK.	110	299	39.25	1.29	2	2.58	
334	SP4BDC	427AH	H5 THK.	110	299	39.25	1.29	2	2.58	
334	SP4BDC	428	10 THK.	90	290	78.50	2.05	2	4.10	
335	SP4BDC	429	5 THK.	90	290	39.25	1.02	2	2.04	
336	SP4BDC	430	10 THK.	90	200	78.50	1.41	2	2.82	
337	SP4BDC	431	5 THK.	90	200	39.25	0.71	2	1.42	
338	SP4BDC	450H	HL120X120X12		4425	21.57	95.45	2	190.90	
339	SP4BDC	451H	HL120X120X12		4425	21.57	95.45	2	190.90	
340	SP4BDC	452H	HL100X100X7		5729	10.73	61.47	2	122.94	
341	SP4BDC	453H	HL100X100X7		5729	10.73	61.47	2	122.94	
342	SP4BDC	454H	HL110X110X10		408	16.58	6.76	4	27.04	
343	SP4BDC	455H	H8 THK.	100	408	62.80	2.56	8	20.48	
344	SP4BDC	456	3 THK.	95	200	23.55	0.45	8	3.60	
345	SP4BDC	457H	HL75X75X6		6276	6.86	43.05	2	86.10	
346	SP4BDC	458H	HL75X75X6		6279	6.86	43.07	2	86.14	
347	SP4BDC	459H	HL75X75X6		3257	6.86	22.34	2	44.68	
348	SP4BDC	460H	HL75X75X6		3256	6.86	22.34	2	44.68	
349	SP4BDC	461H	HL75X75X6		2920	6.86	20.03	2	40.06	
350	SP4BDC	462H	HL75X75X6		2918	6.86	20.02	2	40.04	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
351	SP4BDC	463H	HL60X60X5	60	256	4.58	1.17	4	4.68	
352	SP4BDC	464H	H12 THK.		256	94.20	1.45	4	5.80	
353	SP4BDC	464PH	H6 THK.	142	256	47.10	1.71	4	6.84	
354	SP4BDC	465H	HL90X90X6		2933	8.32	24.40	2	48.80	
355	SP4BDC	466H	HL90X90X6		2933	8.32	24.40	2	48.80	
356	SP4BDC	467H	HL90X90X6		2596	8.32	21.60	2	43.20	
357	SP4BDC	468H	HL90X90X6		2596	8.32	21.60	2	43.20	
358	SP4BDC	469H	HL90X90X6		5647	8.32	46.98	2	93.96	
359	SP4BDC	470H	HL90X90X6		5646	8.32	46.97	2	93.94	
360	SP4BDC	471H	HL80X80X5		4180	6.17	25.79	2	51.58	
361	SP4BDC	472H	HL80X80X5		4180	6.17	25.79	2	51.58	
362	SP4BDC	473H	HL70X70X6		2846	6.39	18.19	2	36.38	
363	SP4BDC	474H	HL70X70X6		2847	6.39	18.19	2	36.38	
364	SP4BDC	475H	HL70X70X6		3274	6.39	20.92	2	41.84	
365	SP4BDC	476H	HL70X70X6		3273	6.39	20.91	2	41.82	
366	SP4BDC	477H	HL75X75X5		2966	5.77	17.11	2	34.22	
367	SP4BDC	478H	HL75X75X5		2964	5.77	17.10	2	34.20	
368	SP4BDC	479H	HL75X75X5		3530	5.77	20.37	2	40.74	
369	SP4BDC	480H	HL75X75X5		3532	5.77	20.38	2	40.76	
370	SP4BDC	481H	HL75X75X6		2916	6.86	20.00	2	40.00	
371	SP4BDC	482H	HL75X75X6		2915	6.86	20.00	2	40.00	
372	SP4BDC	483H	HL75X75X6		2585	6.86	17.73	2	35.46	
373	SP4BDC	484H	HL75X75X6		2585	6.86	17.73	2	35.46	
374	SP4BDC	485H	HL75X75X6		5604	6.86	38.44	2	76.88	
375	SP4BDC	486H	HL75X75X6		5603	6.86	38.44	2	76.88	
376	SP4BDC	487H	HL70X70X5		4260	5.38	22.92	2	45.84	
377	SP4BDC	488H	HL70X70X5		4260	5.38	22.92	2	45.84	
378	SP4BDC	489	L50X50X4		2285	3.08	7.04	2	14.08	
379	SP4BDC	490	L45X45X4		914	2.75	2.51	2	5.02	
380	SP4BDC	491	L45X45X4		914	2.75	2.51	2	5.02	
381	SP4BDC	492	L45X45X4		1408	2.75	3.87	2	7.74	
382	SP4BDC	493	L45X45X4		1408	2.75	3.87	2	7.74	
383	SP4BDC	494	L45X30X4		1048	2.27	2.38	2	4.76	
384	SP4BDC	495	L45X30X4		1048	2.27	2.38	2	4.76	
385	SP4BDC	496	L45X45X4		1592	2.75	4.38	2	8.76	
386	SP4BDC	497	L45X45X4		1592	2.75	4.38	2	8.76	
387	SP4BDC	498	L45X45X4		1204	2.75	3.31	2	6.62	
388	SP4BDC	499	L45X45X4		1204	2.75	3.31	2	6.62	
389	SP4BDC	500	L45X45X4		972	2.75	2.67	2	5.34	
390	SP4BDC	501	L45X45X4		972	2.75	2.67	2	5.34	
391	SP4BDC	502	L45X45X4		1772	2.75	4.87	2	9.74	
392	SP4BDC	503	L45X45X4		1772	2.75	4.87	2	9.74	
393	SP4BDC	504	L45X45X4		1749	2.75	4.81	2	9.62	
394	SP4BDC	505	L45X45X4		1749	2.75	4.81	2	9.62	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
395	SP4BDC	506	L45X30X4		1115	2.27	2.53	2	5.06	
396	SP4BDC	507	L45X30X4		1115	2.27	2.53	2	5.06	
397	SP4BDC	508	L45X30X4		1015	2.27	2.30	2	4.60	
398	SP4BDC	509	L45X30X4		1015	2.27	2.30	2	4.60	
399	SP4BDC	510	L45X30X4		969	2.27	2.20	4	8.80	
400	SP4BDC	511	L45X30X4		1120	2.27	2.54	2	5.08	
401	SP4BDC	512	L45X30X4		1120	2.27	2.54	2	5.08	
402	SP4BDC	513	L45X30X4		1091	2.27	2.48	2	4.96	
403	SP4BDC	514	L45X30X4		1029	2.27	2.34	2	4.68	
404	SP4BDC	515	L50X50X4		2232	3.08	6.87	2	13.74	
405	SP4BDC	516	L45X45X4		981	2.75	2.70	2	5.40	
406	SP4BDC	517	L45X45X4		981	2.75	2.70	2	5.40	
407	SP4BDC	518	L45X45X4		1497	2.75	4.12	2	8.24	
408	SP4BDC	519	L45X45X4		1497	2.75	4.12	2	8.24	
409	SP4BDC	520	L45X30X4		1000	2.27	2.27	2	4.54	
410	SP4BDC	521	L45X30X4		1000	2.27	2.27	2	4.54	
411	SP4BDC	522	L45X45X4		1578	2.75	4.34	2	8.68	
412	SP4BDC	523	L45X45X4		1578	2.75	4.34	2	8.68	
413	SP4BDC	524	L45X45X4		1224	2.75	3.37	2	6.74	
414	SP4BDC	525	L45X45X4		1224	2.75	3.37	2	6.74	
415	SP4BDC	526	L45X45X4		978	2.75	2.69	2	5.38	
416	SP4BDC	527	L45X45X4		978	2.75	2.69	2	5.38	
417	SP4BDC	528	L45X45X4		1756	2.75	4.83	2	9.66	
418	SP4BDC	529	L45X45X4		1756	2.75	4.83	2	9.66	
419	SP4BDC	530	L45X45X4		1771	2.75	4.87	2	9.74	
420	SP4BDC	531	L45X45X4		1771	2.75	4.87	2	9.74	
421	SP4BDC	532	L45X30X4		1102	2.27	2.50	2	5.00	
422	SP4BDC	533	L45X30X4		1102	2.27	2.50	2	5.00	
423	SP4BDC	534	L45X45X4		1060	2.75	2.92	2	5.84	
424	SP4BDC	535	L45X45X4		1060	2.75	2.92	2	5.84	
425	SP4BDC	536	L45X45X4		1049	2.75	2.88	4	11.52	
426	SP4BDC	537	L45X45X4		1108	2.75	3.05	2	6.10	
427	SP4BDC	538	L45X45X4		1108	2.75	3.05	2	6.10	
428	SP4BDC	539	L45X30X4		1080	2.27	2.45	2	4.90	
429	SP4BDC	540	L45X30X4		1093	2.27	2.48	2	4.96	
430	SP4BDC	541H	HL90X90X6		2168	8.32	18.04	2	36.08	
431	SP4BDC	541XH	HL90X90X6		2168	8.32	18.04	2	36.08	
432	SP4BDC	542XH	HL120X120X8		3882	14.66	56.91	1	56.91	
433	SP4BDC	542H	HL120X120X8		3882	14.66	56.91	1	56.91	
434	SP4BDC	543H	HL80X80X5		3624	6.17	22.36	2	44.72	
435	SP4BDC	544	L70X70X5		2237	5.38	12.04	2	24.08	
436	SP4BDC	544X	L70X70X5		2237	5.38	12.04	2	24.08	
437	SP4BDC	545H	HL65X65X4		4178	4.03	16.84	1	16.84	
438	SP4BDC	546H	HL65X65X4		4198	4.03	16.92	1	16.92	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
439	SP4BDC	547	L80X80X5		3624	6.17	22.36	2	44.72	
440	SP4BDC	548H	H12 THK.	342	694	94.20	22.36	2	44.72	
441	SP4BDC	549H	H12 THK.	308	340	94.20	9.86	2	19.72	
442	SP4BDC	550H	H12 THK.	370	434	94.20	15.13	2	30.26	
443	SP4BDC	551H	H12 THK.	294	339	94.20	9.39	2	18.78	
444	SP4BDC	552	6 THK.	200	130	47.10	1.22	2	2.44	
445	SP4BDC	553H	H10 THK.	392	593	78.50	18.25	2	36.50	
446	SP4BDC	553AH	H10 THK.	317	593	78.50	14.76	2	29.52	
447	SP4BDC	554H	H10 THK.	196	391	78.50	6.02	4	24.08	
448	SP4BDC	555	6 THK.	125	241	47.10	1.42	4	5.68	
449	SP4BDC	556	6 THK.	50	241	47.10	0.57	4	2.28	
450	SP4BDC	557	6 THK.	130	242	47.10	1.48	4	5.92	
451	SP4BDC	558	6 THK.	50	242	47.10	0.57	4	2.28	
452	SP4BDC	559	6 THK.	110	175	47.10	0.91	4	3.64	
453	SP4BDC	560	6 THK.	110	176	47.10	0.91	4	3.64	
454	SP4BDC	561H	H5 THK.	153	184	39.25	1.10	4	4.40	
455	SP4BDC	562H	H12 THK.	155	325	94.20	4.75	4	19.00	
456	SP4BDC	563H	H10 THK.	155	329	78.50	4.00	4	16.00	
457	SP4BDC	564	12 THK.	85	130	94.20	1.04	4	4.16	
458	SP4BDC	565	6 THK.	90	270	47.10	1.14	2	2.28	
459	SP4BDC	565A	6 THK.	90	200	47.10	0.85	2	1.70	
460	SP4BDC	566	6 THK.	75	130	47.10	0.46	4	1.84	
461	SP4BDC	567H	HL45X45X4		1235	2.75	3.40	4	13.60	
462	SP4BDC	568	L45X45X4		2414	2.75	6.64	2	13.28	
463	SP4BDC	568X	L45X45X4		2414	2.75	6.64	2	13.28	
464	SP4BDC	569	L45X45X4		2439	2.75	6.71	2	13.42	
465	SP4BDC	569X	L45X45X4		2439	2.75	6.71	2	13.42	
466	SP4BDC	570	5 THK.	100	142	39.25	0.56	8	4.48	
467	SP4BDC	571H	H5 THK.	110	145	39.25	0.63	4	2.52	
468	SP4BDC	572H	H5 THK.	110	140	39.25	0.60	4	2.40	
469	SP4BDC	573	5 THK.	110	237	39.25	1.02	4	4.08	
470	SP4BDC	574	5 THK.	110	232	39.25	1.00	4	4.00	
471	SP4BDC	575H	HL45X45X4		1628	2.75	4.48	4	17.92	
472	SP4BDC	576	5 THK.	100	142	39.25	0.56	16	8.96	
473	SP4BDC	577H	H5 THK.	110	237	39.25	1.02	8	8.16	
474	SP4BDC	578H	HL45X45X4		1349	2.75	3.71	4	14.84	
475	SP4BDC	579	L45X45X4		2109	2.75	5.80	2	11.60	
476	SP4BDC	579X	L45X45X4		2109	2.75	5.80	2	11.60	
477	SP4BDC	580	L45X45X4		2149	2.75	5.91	2	11.82	
478	SP4BDC	580X	L45X45X4		2149	2.75	5.91	2	11.82	
479	SP4BDC	581	5 THK.	100	162	39.25	0.64	4	2.56	
480	SP4BDC	582	5 THK.	100	142	39.25	0.56	4	2.24	
481	SP4BDC	583H	H5 THK.	110	150	39.25	0.65	4	2.60	
482	SP4BDC	584H	H5 THK.	110	145	39.25	0.63	4	2.52	

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. SI/PGCIL/400KV/BUTW-GRKH/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
483	SP4BDC	585	5 THK.	110	262	39.25	1.13	4	4.52	
484	SP4BDC	586	5 THK.	110	237	39.25	1.02	4	4.08	
485	SP4BDC	587	L45X45X4		1349	2.75	3.71	4	14.84	
486	SP4BDC	588	5 THK.	100	162	39.25	0.64	8	5.12	
487	SP4BDC	589	5 THK.	100	142	39.25	0.56	8	4.48	
488	SP4BDC	590	5 THK.	110	262	39.25	1.13	4	4.52	
489	SP4BDC	591	5 THK.	110	237	39.25	1.02	4	4.08	
490	SP4BDC	620H	HL130X130X12		4312	23.45	101.12	1	101.12	
491	SP4BDC	621H	HL130X130X12		4312	23.45	101.12	1	101.12	
492	SP4BDC	622H	HL130X130X12		4807	23.45	112.72	1	112.72	
493	SP4BDC	623H	HL130X130X12		4807	23.45	112.72	1	112.72	
494	SP4BDC	624H	HL110X110X9		388	15.00	5.82	1	5.82	
495	SP4BDC	624XH	HL110X110X9		388	15.00	5.82	1	5.82	
496	SP4BDC	625H	H8 THK.	110	388	62.80	2.68	4	10.72	
497	SP4BDC	626H	HL100X100X6		3827	9.26	35.44	1	35.44	
498	SP4BDC	627H	HL100X100X6		3827	9.26	35.44	1	35.44	
499	SP4BDC	628H	HL100X100X6		5087	9.26	47.11	1	47.11	
500	SP4BDC	629H	HL100X100X6		5087	9.26	47.11	1	47.11	
501	SP4BDC	630H	HL80X80X5		356	6.17	2.20	1	2.20	
502	SP4BDC	630XH	HL80X80X5		356	6.17	2.20	1	2.20	
503	SP4BDC	631H	H6 THK.	80	356	47.10	1.34	4	5.36	
504	SP4BDC	632	L50X50X4		2641	3.08	8.13	1	8.13	
505	SP4BDC	633	L50X50X4		2641	3.08	8.13	1	8.13	
506	SP4BDC	634	L45X45X4		1772	2.75	4.87	1	4.87	
507	SP4BDC	634X	L45X45X4		1772	2.75	4.87	1	4.87	
508	SP4BDC	635	L45X45X4		2398	2.75	6.59	1	6.59	
509	SP4BDC	636	L45X45X4		2398	2.75	6.59	1	6.59	
510	SP4BDC	637	L45X30X4		1220	2.27	2.77	1	2.77	
511	SP4BDC	637X	L45X30X4		1220	2.27	2.77	1	2.77	
512	SP4BDC	638	L45X45X4		2204	2.75	6.06	1	6.06	
513	SP4BDC	639	L45X45X4		2204	2.75	6.06	1	6.06	
514	SP4BDC	640	L45X30X4		669	2.27	1.52	1	1.52	
515	SP4BDC	640X	L45X30X4		669	2.27	1.52	1	1.52	
516	SP4BDC	641	L45X30X4		398	2.27	0.90	1	0.90	
517	SP4BDC	641X	L45X30X4		398	2.27	0.90	1	0.90	
518	SP4BDC	642H	H8 THK.	274	555	62.80	9.55	1	9.55	
519	SP4BDC	643H	H8 THK.	274	555	62.80	9.55	1	9.55	
520	SP4BDC	644	L55X55X4		2963	3.40	10.07	1	10.07	
521	SP4BDC	645	L55X55X4		2963	3.40	10.07	1	10.07	
522	SP4BDC	646	L55X55X4		4295	3.40	14.60	1	14.60	
523	SP4BDC	647	L55X55X4		4295	3.40	14.60	1	14.60	
524	SP4BDC	648	L45X45X4		3083	2.75	8.48	1	8.48	
525	SP4BDC	649	L45X45X4		3083	2.75	8.48	1	8.48	
526	SP4BDC	650	L45X45X4		1584	2.75	4.36	1	4.36	

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. SI/PGCIL/400KV/BUTW-GRKH/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
527	SP4BDC	651	L60X60X5	450	203	4.58	0.93	1	0.93	
528	SP4BDC	652H	HL60X60X4		3063	3.71	11.36	1	11.36	
529	SP4BDC	653H	HL60X60X4		3063	3.71	11.36	1	11.36	
530	SP4BDC	654H	HL55X55X4		4487	3.40	15.26	1	15.26	
531	SP4BDC	655H	HL55X55X4		4487	3.40	15.26	1	15.26	
532	SP4BDC	656H	HL50X50X4		3188	3.08	9.82	1	9.82	
533	SP4BDC	657H	HL50X50X4		3188	3.08	9.82	1	9.82	
534	SP4BDC	658H	HL45X45X4		1782	2.75	4.90	1	4.90	
535	SP4BDC	659H	HL90X90X6		1024	8.32	8.52	1	8.52	
536	SP4BDC	660	32 THK.		480	251.20	54.26	1	54.26	
537	SP4BDC	661H	HL130X130X9		7530	17.82	134.18	1	134.18	
538	SP4BDC	662H	HL130X130X9		7530	17.82	134.18	1	134.18	
539	SP4BDC	663H	HL90X90X6		7341	8.32	61.08	1	61.08	
540	SP4BDC	664H	HL90X90X6		7341	8.32	61.08	1	61.08	
541	SP4BDC	665	L50X50X4		2681	3.08	8.26	1	8.26	
542	SP4BDC	666	L50X50X4		2681	3.08	8.26	1	8.26	
543	SP4BDC	667	L45X30X4		1586	2.27	3.60	1	3.60	
544	SP4BDC	667X	L45X30X4		1586	2.27	3.60	1	3.60	
545	SP4BDC	668	L50X50X4		2416	3.08	7.44	1	7.44	
546	SP4BDC	669	L50X50X4		2416	3.08	7.44	1	7.44	
547	SP4BDC	670	L45X30X4		855	2.27	1.94	1	1.94	
548	SP4BDC	670X	L45X30X4		855	2.27	1.94	1	1.94	
549	SP4BDC	671	L45X30X4		495	2.27	1.12	1	1.12	
550	SP4BDC	671X	L45X30X4		495	2.27	1.12	1	1.12	
551	SP4BDC	672H	H8 THK.	274	555	62.80	9.55	1	9.55	
552	SP4BDC	673H	H8 THK.	274	555	62.80	9.55	1	9.55	
553	SP4BDC	674	L60X60X4	425	2873	3.71	10.66	1	10.66	
554	SP4BDC	675	L60X60X4		2873	3.71	10.66	1	10.66	
555	SP4BDC	676	L65X65X4		3974	4.03	16.02	1	16.02	
556	SP4BDC	677	L45X45X4		2126	2.75	5.85	1	5.85	
557	SP4BDC	678	L60X60X5		197	4.58	0.90	1	0.90	
558	SP4BDC	679	L90X90X5		260	6.97	1.81	2	3.62	
559	SP4BDC	680	6 THK.	220	170	47.10	1.76	1	1.76	
560	SP4BDC	681	6 THK.	220	174	47.10	1.80	1	1.80	
561	SP4BDC	682H	HL60X60X4	425	2904	3.71	10.77	1	10.77	
562	SP4BDC	683H	HL60X60X4		2904	3.71	10.77	1	10.77	
563	SP4BDC	684H	HL50X50X4		3838	3.08	11.82	1	11.82	
564	SP4BDC	685H	HL50X50X4		3838	3.08	11.82	1	11.82	
565	SP4BDC	686H	HL50X50X4		2207	3.08	6.80	1	6.80	
566	SP4BDC	687H	HL90X90X6		1264	8.32	10.52	1	10.52	
567	SP4BDC	688	32 THK.		480	251.20	51.24	1	51.24	
568	SP4BDC	689H	HL90X90X5		4400	6.97	30.67	1	30.67	
569	SP4BDC	690H	HL90X90X5		4400	6.97	30.67	1	30.67	
570	SP4BDC	691H	HL90X90X5		3834	6.97	26.72	1	26.72	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
571	SP4BDC	692H	HL90X90X5	140	3834	6.97	26.72	1	26.72	
572	SP4BDC	693H	HL45X45X4		1425	2.75	3.92	4	15.68	
573	SP4BDC	694H	HL45X45X4		1646	2.75	4.53	2	9.06	
574	SP4BDC	695H	HL45X45X4		1646	2.75	4.53	2	9.06	
575	SP4BDC	696H	HL130X130X10	140	310	19.72	6.11	2	12.22	
576	SP4BDC	697H	H8 THK.		229	62.80	2.01	2	4.02	
577	SP4BDC	698H	H8 THK.		224	62.80	1.97	2	3.94	
578	SP4BDC	699H	HL75X75X5		4206	5.77	24.27	2	48.54	
579	SP4BDC	700H	HL75X75X5	70	4206	5.77	24.27	2	48.54	
580	SP4BDC	701H	HL70X70X5		286	5.38	1.54	2	3.08	
581	SP4BDC	702H	H6 THK.		286	47.10	0.94	4	3.76	
582	SP4BDC	750H	HL150X150X12		8119	27.29	221.57	1	221.57	
583	SP4BDC	751H	HL150X150X12	70	8119	27.29	221.57	1	221.57	
584	SP4BDC	752H	HL90X90X6		8007	8.32	66.62	1	66.62	
585	SP4BDC	753H	HL90X90X6		8007	8.32	66.62	1	66.62	
586	SP4BDC	754	L45X45X4		2472	2.75	6.80	1	6.80	
587	SP4BDC	755	L45X45X4	277	2472	2.75	6.80	1	6.80	
588	SP4BDC	756	L45X45X4		1745	2.75	4.80	2	9.60	
589	SP4BDC	757	L45X45X4		2162	2.75	5.95	1	5.95	
590	SP4BDC	758	L45X45X4		2162	2.75	5.95	1	5.95	
591	SP4BDC	759	L45X30X4	277	1189	2.27	2.70	2	5.40	
592	SP4BDC	760	L45X45X4		1966	2.75	5.41	1	5.41	
593	SP4BDC	761	L45X45X4		1966	2.75	5.41	1	5.41	
594	SP4BDC	762	L45X30X4		635	2.27	1.44	2	2.88	
595	SP4BDC	763	L45X30X4	277	365	2.27	0.83	2	1.66	
596	SP4BDC	764H	H8 THK.		506	62.80	8.80	1	8.80	
597	SP4BDC	765H	H8 THK.		506	62.80	8.80	1	8.80	
598	SP4BDC	766	L55X55X4		2531	3.40	8.61	1	8.61	
599	SP4BDC	767	L55X55X4	385	2531	3.40	8.61	1	8.61	
600	SP4BDC	768	L50X50X4		3611	3.08	11.12	1	11.12	
601	SP4BDC	769	L50X50X4		3611	3.08	11.12	1	11.12	
602	SP4BDC	770	L45X45X4		2684	2.75	7.38	1	7.38	
603	SP4BDC	771	L45X45X4	385	2684	2.75	7.38	1	7.38	
604	SP4BDC	772	L45X45X4		1331	2.75	3.66	1	3.66	
605	SP4BDC	773	L60X60X5		207	4.58	0.95	1	0.95	
606	SP4BDC	774H	HL55X55X4		2672	3.40	9.08	1	9.08	
607	SP4BDC	775H	HL55X55X4	385	2672	3.40	9.08	1	9.08	
608	SP4BDC	776H	HL50X50X4		3797	3.08	11.69	1	11.69	
609	SP4BDC	777H	HL50X50X4		3797	3.08	11.69	1	11.69	
610	SP4BDC	778H	HL45X45X4		2751	2.75	7.57	1	7.57	
611	SP4BDC	779H	HL45X45X4	385	2751	2.75	7.57	1	7.57	
612	SP4BDC	780	L45X45X4		1518	2.75	4.17	1	4.17	
613	SP4BDC	781H	HL90X90X6		865	8.32	7.20	1	7.20	
614	SP4BDC	782	32 THK.		520	251.20	50.29	1	50.29	

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. SI/PGCIL/400KV/BUTW-GRKH/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
615	SP4BDC	783H	HL120X120X9		6343	16.50	104.66	1	104.66	
616	SP4BDC	784H	HL120X120X9		6343	16.50	104.66	1	104.66	
617	SP4BDC	785H	HL80X80X6		6357	7.36	46.79	1	46.79	
618	SP4BDC	786H	HL80X80X6		6357	7.36	46.79	1	46.79	
619	SP4BDC	787	L45X45X4		2414	2.75	6.64	1	6.64	
620	SP4BDC	788	L45X45X4		2414	2.75	6.64	1	6.64	
621	SP4BDC	789	L45X45X4		1561	2.75	4.29	2	8.58	
622	SP4BDC	790	L45X45X4		2094	2.75	5.76	1	5.76	
623	SP4BDC	791	L45X45X4		2094	2.75	5.76	1	5.76	
624	SP4BDC	792	L45X30X4		832	2.27	1.89	2	3.78	
625	SP4BDC	793	L45X30X4		472	2.27	1.07	2	2.14	
626	SP4BDC	794H	H8 THK.	277	501	62.80	8.72	1	8.72	
627	SP4BDC	795H	H8 THK.	277	501	62.80	8.72	1	8.72	
628	SP4BDC	796	L50X50X4		2420	3.08	7.45	1	7.45	
629	SP4BDC	797	L50X50X4		2420	3.08	7.45	1	7.45	
630	SP4BDC	798	L55X55X4		3216	3.40	10.93	1	10.93	
631	SP4BDC	799	L45X45X4		1710	2.75	4.70	1	4.70	
632	SP4BDC	800	L60X60X5		203	4.58	0.93	1	0.93	
633	SP4BDC	801	L70X70X5		297	5.38	1.60	2	3.20	
634	SP4BDC	802	5 THK.	110	244	39.25	1.05	2	2.10	
635	SP4BDC	803	6 THK.	130	142	47.10	0.87	1	0.87	
636	SP4BDC	804H	HL55X55X4		2470	3.40	8.40	1	8.40	
637	SP4BDC	805H	HL55X55X4		2470	3.40	8.40	1	8.40	
638	SP4BDC	806H	HL50X50X4		3203	3.08	9.87	1	9.87	
639	SP4BDC	807H	HL50X50X4		3203	3.08	9.87	1	9.87	
640	SP4BDC	808H	HL45X45X4		1833	2.75	5.04	1	5.04	
641	SP4BDC	809H	HL90X90X6		1087	8.32	9.04	1	9.04	
642	SP4BDC	810	32 THK.	480	385	251.20	46.42	1	46.42	
643	SP4BDC	811	L75X75X5		6850	5.77	39.52	1	39.52	
644	SP4BDC	812	L75X75X5		6850	5.77	39.52	1	39.52	
645	SP4BDC	813	L65X65X5		3508	4.98	17.47	2	34.94	
646	SP4BDC	814	L65X65X5		3508	4.98	17.47	2	34.94	
647	SP4BDC	815	L45X45X4		1192	2.75	3.28	2	6.56	
648	SP4BDC	816	L45X45X4		1192	2.75	3.28	2	6.56	
649	SP4BDC	817	L45X45X4		1333	2.75	3.67	1	3.67	
650	SP4BDC	818	L45X45X4		1333	2.75	3.67	1	3.67	
651	SP4BDC	819	L45X45X4		1333	2.75	3.67	1	3.67	
652	SP4BDC	820	L45X45X4		1333	2.75	3.67	1	3.67	
653	SP4BDC	821	L75X75X5		300	5.77	1.73	2	3.46	
654	SP4BDC	822	6 THK.	110	219	47.10	1.13	2	2.26	
655	SP4BDC	823H	H8 THK.	110	217	62.80	1.50	2	3.00	
656	SP4BDC	824H	H8 THK.	110	223	62.80	1.54	2	3.08	
657	SP4BDC	825	6 THK.	130	142	47.10	0.87	1	0.87	
658	SP4BDC	826H	H6 THK.	110	219	47.10	1.13	1	1.13	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
659	SP4BDC	827H	H6 THK.	110	219	47.10	1.13	1	1.13	
660	SP4BDC	828H	H6 THK.	137	159	47.10	1.03	2	2.06	
661	SP4BDC	850H	HL130X130X14		7869	27.20	214.04	1	214.04	
662	SP4BDC	851H	HL130X130X14		7869	27.20	214.04	1	214.04	
663	SP4BDC	852H	HL100X100X6		7775	9.26	72.00	1	72.00	
664	SP4BDC	853H	HL100X100X6		7775	9.26	72.00	1	72.00	
665	SP4BDC	854	L45X45X4		2311	2.75	6.36	1	6.36	
666	SP4BDC	855	L45X45X4		2311	2.75	6.36	1	6.36	
667	SP4BDC	856	L45X45X4		1582	2.75	4.35	2	8.70	
668	SP4BDC	857	L45X45X4		2083	2.75	5.73	1	5.73	
669	SP4BDC	858	L45X45X4		2083	2.75	5.73	1	5.73	
670	SP4BDC	859	L45X30X4		1089	2.27	2.47	2	4.94	
671	SP4BDC	860	L45X45X4		1911	2.75	5.26	1	5.26	
672	SP4BDC	861	L45X45X4		1911	2.75	5.26	1	5.26	
673	SP4BDC	862	L45X30X4		596	2.27	1.35	2	2.70	
674	SP4BDC	863	L45X30X4		351	2.27	0.80	2	1.60	
675	SP4BDC	864H	H8 THK.	400	486	62.80	12.21	1	12.21	
676	SP4BDC	865H	H8 THK.	400	486	62.80	12.21	1	12.21	
677	SP4BDC	866	L50X50X4		2231	3.08	6.87	1	6.87	
678	SP4BDC	867	L50X50X4		2231	3.08	6.87	1	6.87	
679	SP4BDC	868	L45X45X4		3039	2.75	8.36	1	8.36	
680	SP4BDC	869	L45X45X4		3039	2.75	8.36	1	8.36	
681	SP4BDC	870	L45X45X4		2381	2.75	6.55	1	6.55	
682	SP4BDC	871	L45X45X4		2381	2.75	6.55	1	6.55	
683	SP4BDC	872	L45X45X4		1062	2.75	2.92	1	2.92	
684	SP4BDC	873	L60X60X5		190	4.58	0.87	1	0.87	
685	SP4BDC	874H	HL50X50X4		2344	3.08	7.22	1	7.22	
686	SP4BDC	875H	HL50X50X4		2344	3.08	7.22	1	7.22	
687	SP4BDC	876H	HL45X45X4		3216	2.75	8.84	1	8.84	
688	SP4BDC	877H	HL45X45X4		3216	2.75	8.84	1	8.84	
689	SP4BDC	878H	HL45X45X4		2445	2.75	6.72	1	6.72	
690	SP4BDC	879H	HL45X45X4		2445	2.75	6.72	1	6.72	
691	SP4BDC	880	L45X45X4		1244	2.75	3.42	1	3.42	
692	SP4BDC	881H	HL90X90X6		752	8.32	6.26	1	6.26	
693	SP4BDC	882	32 THK.	480	455	251.20	54.86	1	54.86	
694	SP4BDC	883H	HL120X120X9		6078	16.50	100.29	1	100.29	
695	SP4BDC	884H	HL120X120X9		6078	16.50	100.29	1	100.29	
696	SP4BDC	885H	HL100X100X6		6100	9.26	56.49	1	56.49	
697	SP4BDC	886H	HL100X100X6		6100	9.26	56.49	1	56.49	
698	SP4BDC	887	L45X45X4		2251	2.75	6.19	1	6.19	
699	SP4BDC	888	L45X45X4		2251	2.75	6.19	1	6.19	
700	SP4BDC	889	L45X30X4		1414	2.27	3.21	2	6.42	
701	SP4BDC	890	L45X45X4		1984	2.75	5.46	1	5.46	
702	SP4BDC	891	L45X45X4		1984	2.75	5.46	1	5.46	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
703	SP4BDC	892	L45X30X4		760	2.27	1.73	2	3.46	
704	SP4BDC	893	L45X30X4		434	2.27	0.99	2	1.98	
705	SP4BDC	894H	H8 THK.	404	478	62.80	12.13	1	12.13	
706	SP4BDC	895H	H8 THK.	404	478	62.80	12.13	1	12.13	
707	SP4BDC	896	L50X50X4		2176	3.08	6.70	1	6.70	
708	SP4BDC	897	L50X50X4		2176	3.08	6.70	1	6.70	
709	SP4BDC	898	L55X55X4		2592	3.40	8.81	1	8.81	
710	SP4BDC	899	L45X45X4		1389	2.75	3.82	1	3.82	
711	SP4BDC	900	L60X60X5		192	4.58	0.88	1	0.88	
712	SP4BDC	901	6 THK.	130	140	47.10	0.86	1	0.86	
713	SP4BDC	902	6 THK.	130	140	47.10	0.86	1	0.86	
714	SP4BDC	903H	HL50X50X4		2212	3.08	6.81	1	6.81	
715	SP4BDC	904H	HL50X50X4		2212	3.08	6.81	1	6.81	
716	SP4BDC	905H	HL45X45X4		2787	2.75	7.66	1	7.66	
717	SP4BDC	906H	HL45X45X4		2787	2.75	7.66	1	7.66	
718	SP4BDC	907H	HL45X45X4		1557	2.75	4.28	1	4.28	
719	SP4BDC	908H	HL90X90X6		901	8.32	7.50	1	7.50	
720	SP4BDC	909	32 THK.	480	415	251.20	50.04	1	50.04	
721	SP4BDC	910H	HL80X80X5		5386	6.17	33.23	1	33.23	
722	SP4BDC	911H	HL80X80X5		5386	6.17	33.23	1	33.23	
723	SP4BDC	912H	HL60X60X4		2757	3.71	10.23	2	20.46	
724	SP4BDC	913H	HL60X60X4		2757	3.71	10.23	2	20.46	
725	SP4BDC	914	L45X45X4		1058	2.75	2.91	2	5.82	
726	SP4BDC	915	L45X45X4		1058	2.75	2.91	2	5.82	
727	SP4BDC	916	L45X45X4		936	2.75	2.57	4	10.28	
728	SP4BDC	917H	HL65X65X4		200	4.03	0.81	2	1.62	
729	SP4BDC	918H	H6 THK.	100	200	47.10	0.94	2	1.88	
730	SP4BDC	919H	H8 THK.	100	225	62.80	1.41	2	2.82	
731	SP4BDC	920H	H8 THK.	100	218	62.80	1.37	2	2.74	
732	SP4BDC	921H	H6 THK.	148	150	47.10	1.05	4	4.20	
733	SP4BDC	922H	H6 THK.	100	200	47.10	0.94	1	0.94	
734	SP4BDC	923H	H6 THK.	100	200	47.10	0.94	1	0.94	
735	SP4BDC	950	L70X70X5		7332	5.38	39.45	1	39.45	
736	SP4BDC	951	L70X70X5		7332	5.38	39.45	1	39.45	
737	SP4BDC	952	L70X70X5		7365	5.38	39.62	1	39.62	
738	SP4BDC	953	L70X70X5		7365	5.38	39.62	1	39.62	
739	SP4BDC	954	L65X65X5		2700	4.98	13.45	2	26.90	
740	SP4BDC	955	L65X65X5		2700	4.98	13.45	2	26.90	
741	SP4BDC	956	L45X30X4		1237	2.27	2.81	1	2.81	
742	SP4BDC	957	L45X30X4		1237	2.27	2.81	1	2.81	
743	SP4BDC	958	L45X45X4		3010	2.75	8.28	2	16.56	
744	SP4BDC	959	L45X45X4		2143	2.75	5.89	1	5.89	
745	SP4BDC	960	L45X45X4		2143	2.75	5.89	1	5.89	
746	SP4BDC	961H	HL55X55X4		2657	3.40	9.03	2	18.06	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
747	SP4BDC	962	L45X30X4		1484	2.27	3.37	1	3.37	
748	SP4BDC	963	L45X30X4		1484	2.27	3.37	1	3.37	
749	SP4BDC	964H	HL50X50X4		2245	3.08	6.91	2	13.82	
750	SP4BDC	965	L45X30X4		826	2.27	1.88	1	1.88	
751	SP4BDC	966	L45X30X4		826	2.27	1.88	1	1.88	
752	SP4BDC	967	L45X45X4		499	2.75	1.37	2	2.74	
753	SP4BDC	968	L70X70X5		6267	5.38	33.72	1	33.72	
754	SP4BDC	969	L70X70X5		6267	5.38	33.72	1	33.72	
755	SP4BDC	970	L70X70X5		5839	5.38	31.41	1	31.41	
756	SP4BDC	971	L70X70X5		5839	5.38	31.41	1	31.41	
757	SP4BDC	972	L45X45X4		2581	2.75	7.10	2	14.20	
758	SP4BDC	973	L45X30X4		1509	2.27	3.43	1	3.43	
759	SP4BDC	974	L45X30X4		1509	2.27	3.43	1	3.43	
760	SP4BDC	975	L45X45X4		2143	2.75	5.89	1	5.89	
761	SP4BDC	976	L45X45X4		2143	2.75	5.89	1	5.89	
762	SP4BDC	977H	HL45X45X4		1884	2.75	5.18	2	10.36	
763	SP4BDC	978	L45X45X4		1660	2.75	4.57	1	4.57	
764	SP4BDC	979	L45X45X4		1660	2.75	4.57	1	4.57	
765	SP4BDC	980	L45X30X4		1039	2.27	2.36	2	4.72	
766	SP4BDC	981	L45X45X4		617	2.75	1.70	2	3.40	
767	SP4BDC	982H	HL100X100X6		326	9.26	3.02	1	3.02	
768	SP4BDC	983H	HL100X100X6		326	9.26	3.02	1	3.02	
769	SP4BDC	984	8 THK.	206	326	62.80	4.22	2	8.44	
770	SP4BDC	985H	H8 THK.	245	363	62.80	5.59	1	5.59	
771	SP4BDC	985AH	H8 THK.	240	376	62.80	5.67	1	5.67	
772	SP4BDC	986H	H12 THK.	240	360	94.20	8.14	2	16.28	
773	SP4BDC	987H	HL90X90X5		2534	6.97	17.66	1	17.66	
774	SP4BDC	988H	HL75X75X5		3998	5.77	23.07	2	46.14	
775	SP4BDC	989H	HL75X75X5		3998	5.77	23.07	2	46.14	
776	SP4BDC	990H	HL45X45X4		1574	2.75	4.33	2	8.66	
777	SP4BDC	991H	HL45X45X4		1574	2.75	4.33	2	8.66	
778	SP4BDC	992	L45X30X4		836	2.27	1.90	2	3.80	
779	SP4BDC	993	L45X30X4		836	2.27	1.90	2	3.80	
780	SP4BDC	994H	H6 THK.	100	155	47.10	0.73	4	2.92	
781	SP4BDC	995H	H6 THK.	100	118	47.10	0.56	4	2.24	
782	SP4BDC	996	L45X45X4		3530	2.75	9.71	1	9.71	
783	SP4BDC	997	L45X45X4		3530	2.75	9.71	1	9.71	
784	SP4BDC	998	L45X45X4		2906	2.75	7.99	1	7.99	
785	SP4BDC	999	L45X45X4		2906	2.75	7.99	1	7.99	
786	SP4BDC	1000	L45X30X4		2281	2.27	5.18	1	5.18	
787	SP4BDC	1001	L45X30X4		2281	2.27	5.18	1	5.18	
788	SP4BDC	1002	L45X30X4		1004	2.27	2.28	1	2.28	
789	SP4BDC	1003H	H8 THK.	170	352	62.80	3.76	1	3.76	
790	SP4BDC	1004H	H8 THK.	170	352	62.80	3.76	1	3.76	

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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
791	SP4BDC	1005	6 THK.	152	185	47.10	1.32	1	1.32	
792	SP4BDC	1006	L45X45X4		2776	2.75	7.63	1	7.63	
793	SP4BDC	1007	L45X45X4		2776	2.75	7.63	1	7.63	
794	SP4BDC	1008	L45X45X4		2440	2.75	6.71	1	6.71	
795	SP4BDC	1009	L45X45X4		2440	2.75	6.71	1	6.71	
796	SP4BDC	1010	L45X30X4		2097	2.27	4.76	1	4.76	
797	SP4BDC	1011	L45X30X4		2097	2.27	4.76	1	4.76	
798	SP4BDC	1012	L45X30X4		729	2.27	1.65	1	1.65	
799	SP4BDC	1013	6 THK.	115	140	47.10	0.76	1	0.76	
800	SP4BDC	1014	L45X45X4		3405	2.75	9.36	1	9.36	
801	SP4BDC	1015	L45X45X4		3405	2.75	9.36	1	9.36	
802	SP4BDC	1016	L45X45X4		2749	2.75	7.56	1	7.56	
803	SP4BDC	1017	L45X45X4		2749	2.75	7.56	1	7.56	
804	SP4BDC	1018	L45X30X4		2075	2.27	4.71	1	4.71	
805	SP4BDC	1019	L45X30X4		2075	2.27	4.71	1	4.71	
806	SP4BDC	1020	L45X30X4		1005	2.27	2.28	1	2.28	
807	SP4BDC	1021H	H8 THK.	172	349	62.80	3.77	1	3.77	
808	SP4BDC	1022H	H8 THK.	172	349	62.80	3.77	1	3.77	
809	SP4BDC	1023	6 THK.	156	185	47.10	1.36	1	1.36	
810	SP4BDC	1024	L45X45X4		2760	2.75	7.59	1	7.59	
811	SP4BDC	1025	L45X45X4		2760	2.75	7.59	1	7.59	
812	SP4BDC	1026	L45X45X4		2317	2.75	6.37	1	6.37	
813	SP4BDC	1027	L45X45X4		2317	2.75	6.37	1	6.37	
814	SP4BDC	1028	L45X30X4		928	2.27	2.11	1	2.11	
815	SP4BDC	1029	6 THK.	115	142	47.10	0.77	1	0.77	
816	SP4BDC	1030	L45X45X4		215	2.75	0.59	1	0.59	
817	SP4BDC	1031	L45X45X4		182	2.75	0.50	1	0.50	
818	SP4BDC	1032	L45X45X4		230	2.75	0.63	1	0.63	
819	SP4BDC	1033	L45X45X4		196	2.75	0.54	1	0.54	
TOTAL WT=									25285.73	

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	25	0.35	
5 THK. PACK WASHERS (For 16 Ø Bolt)	0.018	101	1.82	
6 THK. PACK WASHERS (For 16 Ø Bolt)	0.021	322	6.76	
8 THK. PACK WASHERS (For 16 Ø Bolt)	0.028	23	0.64	
10 THK. PACK WASHERS (For 16 Ø Bolt)	0.036	52	1.87	
12 THK. PACK WASHERS (For 16 Ø Bolt)	0.043	472	20.30	
TOTAL WT.			31.74	Kgs

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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/DC/BB

STRUCTURE : 400KV D/C "DC(0°-30°)/MKD "QDC5"

BILL OF MATERIALS

PART : 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
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WEIGHT OF STEEL MEMBERS

A) TOTAL WT. OF HT STEEL FAB. MEMBER	=	21357.47	Kgs
B) TOTAL WT. OF MILD STEEL FAB. MEMBER	=	3928.26	Kgs
C) TOTAL WT. OF PACK WASHERS	=	31.74	Kgs
GRAND TOTAL WT. OF FAB. MEMBER WITH PACK WASHERS (A+B+C)	=	25317.47	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		1489	177.19
HRH BOLT / NUT FOR M16X40	0.126		1245	156.87
HRH BOLT / NUT FOR M16X45	0.134		816	109.34
HRH BOLT / NUT FOR M16X50	0.142		1085	154.07
HRH BOLT / NUT FOR M16X55	0.150		399	59.85
HRH BOLT / NUT FOR M16X60	0.158		259	40.92
HRH BOLT / NUT FOR M16X65	0.164		322	52.81
HRH BOLT / NUT FOR M16X70	0.173		788	136.32
HRH BOLT / NUT FOR M16X75	0.180		90	16.20
HRH BOLT / NUT FOR M16X80	0.185		44	8.14
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		6537	58.83
STEP BOLTS OF 16X175MM DIA WITH 2 NUTS 1 S.W	0.374		206	77.04
TOTAL WT. OF HEXAGONAL BOLTS / NUTS , SPRING WASHERS STEP BOLT		=	1047.58	Kgs

SUMMARY OF WEIGHTS

A) WT. OF MS MEMBERS	=	3928.26	Kgs
B) WT. OF PACK WASHERS	=	31.74	Kgs
C) WT. OF HT MEMBERS	=	21357.47	Kgs
D) WT. OF FAB MEMBERS (A+B+C)	=	25317.47	Kgs
E) WT. OF BOLT & NUTS	=	1047.58	Kgs
F) TOTAL	=	26365.05	Kgs

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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 "DC(0°-30°)/MKD "QDCS"

BOM NO. SI/PGCIL/400KV/BUTW-GRKH/DC/BB

PART : BASIC BODY

SECTION ABSTRACT					
MILD STEEL	WEIGHT (Kg)	HIGH TENSILE	WEIGHT (Kg)	MS. PLATE	WEIGHT
L40X40X3		HL45X30X4		2 THK.	
L40X40X4		HL45X30X5		3 THK.	10.40
L40X40X5		HL45X45X4	346.36	4 THK.	
L40X40X6		HL45X45X5		5 THK.	171.52
L45X30X4	279.40	HL50X50X4	251.00	6 THK.	95.77
L45X30X5		HL50X50X5		8 THK.	64.68
L45X45X4	1490.06	HL55X55X4	155.74	10 THK.	6.92
L45X45X3		HL55X55X5		12 THK.	13.12
L45X45X5		HL60X60X4	144.94	14 THK.	
L45X45X6		HL60X60X5	4.68	16 THK.	
L50X50X3		HL60X60X6		20 THK.	
L50X50X4	378.50	HL65X65X4	259.74	22 THK.	
L50X50X5		HL65X65X5	515.96	25 THK.	
L50X50X6		HL65X65X6		32 THK.	307.11
L55X55X4	300.42	HL70X70X4			
L55X55X5		HL70X70X5	107.08	TOTAL MS PLT. 669.52	
L55X55X6		HL70X70X6	156.42		
L55X55X8		HL75X75X4		HT. PLATE	WEIGHT
L60X60X4	21.32	HL75X75X5	942.86	H5 THK.	75.40
L60X60X5	5.46	HL75X75X6	665.34	H6 THK.	136.28
L60X60X6		HL80X80X5	622.54	H8 THK.	199.04
L65X65X4	114.82	HL80X80X6	501.06	H10 THK.	234.74
L65X65X5	123.68	HL80X80X7	229.66	H12 THK.	1120.24
L65X65X6		HL80X80X8		H14 THK.	
L80X80X5	44.72	HL90X90X5	539.36	H16 THK.	
L70X70X4		HL90X90X6	835.74	H20 THK.	
L70X70X5	339.76	HL90X90X7	1631.82	H30 THK.	
L70X70X6		HL90X90X8			
L75X75X4		HL100X100X6	1565.00	TOTAL HT PLT. 1765.70	
L75X75X5	82.50	HL100X100X7	562.20		
L90X90X5	78.10	HL110X110X7	599.60		
L90X90X6		HL110X110X8			
L90X90X7		HL110X110X9	158.64		
L90X90X8		HL110X110X10	27.04		
L100X100X6		HL110X110X12			
L100X100X7		HL120X120X7			
L100X100X8		HL120X120X8	113.82		
L100X100X10		HL120X120X9	409.90		
L110X110X6		HL120X120X10			
L110X110X7		HL120X120X12	381.80		
L110X110X10		HL130X130X9	268.36		
L110X110X12		HL130X130X10	261.11		
L120X120X8		HL130X130X11	256.06		
L120X120X10		HL130X130X12	480.20		
L120X120X12		HL130X130X14	428.08		
L150X150X10		HL150X150X12	443.14		
L150X150X16		HL150X150X15	616.40		
		HL200X200X15	1227.60		
		HL250X250X18	3882.52		
TOTAL	3258.74	TOTAL	19591.77		
		GRAND TOTAL =	25285.73		