Project
Engineering
Management

Bharat Heavy Electricals Limited

(A Govt. Of India Undertaking)

Ref No. : PE/PG/NSP/E-5442/2016/CORRIGENDA/01

Date: 04-02-2017

CORRIGENDA / ADDENDUM-01

SUBJECT: 1 X 250 MW NSPCL ROURKELA PP-II EXPANSION
TENDER ENQUIRY FOR DISTRIBUTION BOARD
OUR REF: TENDER ENQUIRY NO: PE/PG/NSP/E-5442/2016, DTD-12.01.2017

Lugs and Glands are to be provided as per DataSheet-A Clause 5.13 and 5.14.

Please find enclosed Cable Sizing calculation for selection of Cable Sizes Lugs and Glands.

All the bidders are requested to consider average distance of 150 m for 50% of feeders and 200 m for remaining feeders and choose Cables Lugs and Glands accordingly.

Thanking You,

With Regards,
For & on behalf of BHEL

4/2/17

SUMEET SAHAY
SR ENGINEER/PG-I-2

सुमीत सहाय / SUMEET SAHAY
वरिष्ठ अभियन्ता (पी.जी.-I-2) / Sr. Engineer (PG-I-2)
भारत हैवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd.
पावर सेक्टर-परियोजना इंजीनियरिंग प्रबंधन
Power Sector-Project Engineering Management
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Please reply to:
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TABLE-A: CABLE SELECTION TABLE FOR 415 V SUPPLY FEEDERS (CABLES LAID IN AIR)

1X250 MW NSPCL ROURKELA TPP-III

DOC. NO:PE-DC-427-507-E002, R-1

								SELECTED CABLE SIZES FOR SUPPLY FEEDER LENGTH (M)				STEADY STATE VOLTAGE DROP (%) PERMISSIBLE 3%			
S.N.	STANDARD RATING(A)	STANDARD RATING(A)*0.9	Size as per S/C current (mm^2)	k factor	Base Current	Insulation	Size as per Base Current	50	100	150	200	50	100	150	200
FUSE / MCCB PROTECTED FEEDERS															
1	1	0.90	2.50	0.61	1.48	XLPE	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	0.15	0.31	0.46	0.61
2	2	1.80	2.50	0.61	2.95	XLPE	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	0.31	0.61	0.92	1.22
3	5	4.50	2.50	0.61	7.38	XLPE	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-10mm^2(Al)	0.76	1.53	2.29	1.27
4	10	9.00	2.50	0.61	14.75	XLPE	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-10mm^2(Al)	4C-10mm^2(Al)	4C-10mm^2(Al)	1.53	1.27	1.91	2.55
5	15	13.50	2.50	0.61	22.13	XLPE	4C-2.5mm^2 (Cu)	4C-2.5mm^2 (Cu)	4C-10mm^2(Al)	4C-10mm^2(Al)	3.5C-25mm^2[Al]	2.29	1.91	2.87	1.51
6	20	18.00	2.50	0.61	29.51	XLPE	4C-2.5mm^2 (Cu)	4C-10mm^2(Al)	4C-10mm^2(Al)	3.5C-25mm^2[Al]	3.5C-25mm^2[Al]	1.27	2.55	1.51	2.02
7	25	22.50	2.50	0.61	36.89	XLPE	4C-10mm^2(Al)	4C-10mm^2(Al)	3.5C-25mm^2[Al]	3.5C-25mm^2[Al]	3.5C-25mm^2[Al]	1.59	1.26	1.89	2.52
8	63	56.70	2.50	0.61	92.95	XLPE	3.5C-25mm^2[Al]	3.5C-25mm^2[Al]	3.5C-50mm^2[Al]	3.5C-50mm^2[Al]	3.5C-95mm^2[Al]	1.59	1.74	2.61	1.83
9	100	90.00	2.50	0.61	147.54	XLPE	3.5C-70mm^2[Al]	3.5C-95mm^2[Al]	3.5C-95mm^2[Al]	3.5C-95mm^2[Al]	3.5C-95mm^2[Al]	0.72	1.45	2.17	2.90
10	125	112.50	2.50	0.61	184.43	XLPE	3.5C-95mm^2[Al]	3.5C-95mm^2[Al]	3.5C-95mm^2[Al]	3.5C-95mm^2[Al]	3.5C-185mm^2[Al]	0.91	1.81	2.72	2.03
11	200	180.00	2.50	0.61	295.08	XLPE	3.5C-185mm^2[Al]	3.5C-185mm^2[Al]	3.5C-185mm^2[Al]	3.5C-185mm^2[Al]	2-3.5C-185mm^2[Al]	0.81	1.63	2.44	1.63
12	250	225.00	2.50	0.61	368.85	XLPE	2-3.5C-150mm^2[Al]	2-3.5C-185mm^2[Al]	2-3.5C-185mm^2[Al]	2-3.5C-185mm^2[Al]	2-3.5C-185mm^2[Al]	0.51	1.02	1.53	2.03
13	400	360.00	2.50	0.83	433.73	XLPE	1C-300mm^2(Al)/ph 1C-95mm^2(Al)-N	1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	1C-630mm^2(Al)/ph 1C-400mm^2(Al)-N	0.96	1.93	2.89	2.88
BREAKER PROTECTED FEEDERS															
14	630	567.00	400	0.83	683.13	XLPE	1C-500mm^2(Al)/ph 1C-400mm^2(Al)-N	1C-630mm^2(Al)/ph 1C-400mm^2(Al)-N	1C-630mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-630mm^2(Al)/ph 1C-400mm^2(Al)-N	1.13	2.27	2.28	2.27
15	800	720.00	400	0.83	867.47	XLPE	2-1C-400mm^2(Al)/ph 1-1C-400mm^2(Al)-N	2-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-630mm^2(Al)/ph 1C-400mm^2(Al)-N	0.96	1.93	2.89	2.88
16	900	810.00	400	0.83	975.90	XLPE	2-1C-400mm^2(Al)/ph 1-1C-400mm^2(Al)-N	2-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-630mm^2(Al)/ph 1C-400mm^2(Al)-N	3-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	1.09	2.17	2.43	2.89
17	1000	900.00	400	0.83	1084.34	XLPE	2-1C-400mm^2(Al)/ph 1-1C-400mm^2(Al)-N	2-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-400mm^2(Al)/ph 1C-400mm^2(Al)-N	2-1C-630mm^2(Al)/ph 1C-400mm^2(Al)-N	3-1C-630mm^2(Al)/ph 1C-400mm^2(Al)-N	1.21	2.41	2.70	2.40
18	1600	1440.00	400	0.83	1734.94	XLPE	3-1C-400mm^2(Al)/ph 2-1C-300mm^2(Al)-N	3-1C-400mm^2(Al)/ph 2-1C-400mm^2(Al)-N	3-1C-400mm^2(Al)/ph 2-1C-400mm^2(Al)-N	3-1C-630mm^2(Al)/ph 2-1C-400mm^2(Al)-N	3-1C-630mm^2(Al)/ph 2-1C-400mm^2(Al)-N	1.29	2.57	2.88	2.88
19	2000	1800.00	400	0.83	2168.67	XLPE	3-1C-630mm^2(Al)/ph 2-1C-400mm^2(Al)-N	3-1C-630mm^2(Al)/ph 2-1C-400mm^2(Al)-N	3-1C-630mm^2(Al)/ph 2-1C-400mm^2(Al)-N	4-1C-630mm^2(Al)/ph 2-1C-400mm^2(Al)-N	5-1C-630mm^2(Al)/ph 2-1C-400mm^2(Al)-N	1.20	2.40	2.70	2.88
20	2500	2250.00	400	0.83	2710.84	XLPE	4-1C-500mm^2(Al)/ph 2-1C-500mm^2(Al)-N	4-1C-630mm^2(Al)/ph 2-1C-630mm^2(Al)-N	4-1C-630mm^2(Al)/ph 2-1C-630mm^2(Al)-N	5-1C-630mm^2(Al)/ph 2-1C-630mm^2(Al)-N	6-1C-630mm^2(Al)/ph 2-1C-630mm^2(Al)-N	1.12	2.25	2.70	3.00

NOTES:

1 In the absence of final busbar ratings of various switchboards/ MCCs/ distribution boards/ supply feeders, the cable sizes have been calculated for 0.9 * rated busbar current (i.e. maximum loading of busbar). Cable sizes for different switchboards/ MCCs/ ACDBs shall be chosen from the above based on the actual feeder length. However, the actual cable sizes will be deduced on the basis of actual current loading of each switchboard/ MCC/ ACDB/ supply feeder.

2 In case of change of installation conditions of any feeder - cable or length of feeder, the cable size/ type shall be checked for the new installation conditions/ feeder length and changed, if required.

3 For cable from DG to emergency MCC, refer DG Sizing Calculation document.