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TREBALL FI DE GRAU

Grau en Enginyeria de la Energia

ELECTRIFICATION PROJECT IN A BOX FACTORY



Volume IV

Budget

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4. BUDGET

4.1. LINES

4.1.1. CONDUCTORS

Class	Reference	Longitude (m)	Price (€/km)	Total
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 3x1,5mm ² Cu	1S48306VDP	855	2086	1.783,53 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 3x2,5mm ² Cu	1S48307VDP	2241	3050	6.835,05 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x4mm ² Cu	1S48108VDP	185	1372	253,82 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 5x2,5mm ² Cu	1S48507VDP	2905	4496	13.060,88 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x6mm ² Cu	1S48109VDP	800	1838	1.470,40 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x10mm ² Cu	1S48110VDP	4080	2838	11.579,04 €

General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x16mm ² Cu	1S48111VDP	1730	4110	7.110,30 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x25mm ² Cu	1S48112VDP	3200	6392	20.454,40 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x35mm ² Cu	1S48113VDP	980	9224	9.039,52 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x50mm ² Cu	1S48114VDP	320	12224	3.911,68 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x70mm ² Cu	1S48115VDP	1320	16814	22.194,48 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x95mm ² Cu	1S48116VDP	1280	22024	28.190,72 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x120mm ² Cu	1S48117VDP	385	27338	10.525,13 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x240mm ² Cu	1S48120VDP	1540	54596	84.077,84 €

General Cable HARMOHNY XZ1 (AS) AL XZ1 (S) 0,6 / 1 KV. 1x240mm ² Al	1S48129VZP	160	8332	1.333,12 €
General Cable EXZHELLENT- XXI 1.000V RZ1-K (AS) 1x185mm ² Cu	1S48119VDP	120	42716	5.125,92 €
Total conductors				226.945,83 €

4.1.2. CANALIZATIONS

Class	Reference	Distance (m)	Price (€/m)	Total
REJIBAND 60X 60 BYCRO C5	60212200	95	14,35	1.363,25 €
REJIBAND 60X200 BYCRO C5	60212060	145	7,81	1.132,45 €
REJIBAND 35X60 BYCRO C5	60211060	440	9,72	4.276,80 €
REJIBAND 60X100 BYCRO C5	60212100	10	9,68	96,80 €
ARMENGOL tube Øint.14,4mm halogen free strong protection	070TAM PV20	7050	1,22	8.601,00 €
Accessories				1.547,03 €
Total canalizations				17.017,33 €

4.1.3. INSTALLATION OF CONDUCTORS AND CANALIZATIONS

Person	Hours	Price (€/h)	Total
Electric Worker	256	41	10.496,00 €
Head of work	64	54	3.456,00 €
Necessary elements and other material			10.000,00 €
Total installation			23.952,00 €

4.1.4. Total lines**267.915,16 €****4.2. PANELS AND SUB-PANELS****4.2.1. Differential switches**

Class	Reference	Quantity	Price (€/ut.)	Total
Schneider Vigi iDPN, AC, 25A, 30mA, P+N	A9N21681	15	188,99	2.834,85 €
Schneider Vigi iDPN, AC, 25A, 300mA, P+N	A9N21682	8	188,79	1.510,32 €
Schneider Vigi iDPN, AC, 40A, 30mA, P+N	A9N21683	21	198,42	4.166,82 €
Schneider Vigi iDPN, AC, 40A, 300mA, P+N	A9N21684	8	198,21	1.585,68 €
Schneider Vigi iDPN, A si, 40A, 30mA, P+N	A9N21691	4	249,98	999,92 €
Schneider Vigi iC60 2P 63A 30mA AC	A9V11263	9	372,06	3.348,54 €
Schneider VIGI i DPN 3P+N 25A 30mA AC	A9N21709	23	249,82	5.745,86 €
Schneider VIGI i DPN 3P+N 25A 300mA AC	A9N21710	15	221,83	3.327,45 €
Schneider VIGI i DPN 3P+N 40A 30mA AC	A9N21711	22	294,19	6.472,18 €

Schneider VIGI i DPN 3P+N 40A 300mA AC	A9N21712	4	242,84	971,36 €
Schneider VIGI C60 C 40A 4P 300 mA-S AC	A9N26848	4	413,16	1.652,64 €
Schneider VIGI C60 C 63A 4P 30 mA AC	A9N26846	12	390,69	4.688,28 €
Schneider VIGI C60 C 63A 4P 300 mA AC	A9N26847	6	320,25	1.921,50 €
Schneider Vigi iC60 4P 63A 300mA-S AC	A9V15463	4	422,83	1.691,32 €
Schneider Micrologic 2.2 100A 4P4R NSX100-250	LV429080	7	729,47	5.106,29 €
Schneider Micrologic 5.2 E 100A 4P4RNSX100-250	LV429105	1	1241,6	1.241,60 €
Schneider VIGI NG125 ""A"" 4P 125A I/S	19046	3	897,72	2.693,16 €
Schneider TM160D 4P4R NSX160	LV430450	2	712,35	1.424,70 €
Schneider TM250D 4P4R NSX250	LV431450	2	1125,83	2.251,66 €
Schneider Micrologic 2.3 400A 4P4R NSX400/630	LV432085	2	1323,34	2.646,68 €

Schneider Micrologic 2.3 630A 4P4R NSX630	LV432084	1	1333,02	1.333,02 €
Total differential switches				57.613,83 €

4.2.2. Magnetotermic switches

Class	Reference	Quantity	Price (€/ut.)	Total
Schneider iC60H 2P 10A C	A9F89210	40	79,52	3.180,80 €
Schneider iC60H 2P 16A C	A9F89216	77	81,11	6.245,47 €
Schneider iC60H 2P 32A C	A9F89232	2	90,13	180,26 €
Schneider iC60H 2P 63A C	A9F89263	2	146,2	292,40 €
Schneider iC60H 4P 6A C	A9F89406	1	175,45	175,45 €
Schneider iC60H 4P 16A C	A9F89416	86	167,38	14.394,68 €
Schneider iC60H 4P 20A C	A9F89420	1	172,21	172,21 €
Schneider iC60H 4P 25A C	A9F89425	5	175,45	877,25 €
Schneider iC60H 4P 32A C	A9F89432	3	186,08	558,24 €
Schneider iC60H 4P 40A C	A9F89440	14	209,17	2.928,38 €
Schneider iC60H 4P 50A C	A9F89450	4	299,44	1.197,76 €
Schneider iC60H 4P 63A C	A9F89463	22	325,42	7.159,24 €

Schneider NS1000 N 3P FIJO F.A. MICROLOGIC 2.0 E	34408	1	9384,13	9.384,13 €
Schneider NS1000 N 4P FIJO F.A. MICROLOGIC 2.0 E	34410	2	11401,83	22.803,66 €
Schneider NSX630N Micrologic 2.3 630A 4P4R	LV432894	1	5155,46	5.155,46 €
Schneider NSX400N Micrologic 2.3 400A 4P4R	LV432694	4	4183,15	16.732,60 €
Schneider NSX250S 4P SR Bloque de corte + TM200D 4P4R NSX250	LV431396+LV431451	2	3979,68	7.959,36 €
Schneider NSX160S 4P SR Bloque de corte + TM100D 4P4R NSX100	LV430396+LV429050	5	2259,49	11.297,45 €
Schneider NG125N "C" 4P 125A	18662	7	577,49	4.042,43 €
Schneider NSX100S 4P SR Bloque de corte + Unidad de control TM40D 4P4R	LV429019+LV429054	11	1623,06	17.853,66 €
Total magnetotermic switches				132.590,89 €

4.2.3. BOX AND PANELS

ABB U41 Arm.emp. 48 mód.(125mm) pta.metàlica	30101	21	301,62	6.334,02 €
ABB U51 Arm.emp. 60 mód.(125mm) pta.metàlica	30104	4	339,18	1.356,72 €
Schneider SF c/placa 1600x800x800	NSYSF16880P	4	1119,89	4.479,56 €
Schneider 2 paneles laterales std 1600x800	NSY2SP168	4	280,61	1.122,44 €
Bus bar 50x5	-	8	64,8	518,40 €
Extra materials and other elements				7.024,00 €
Total box and panels				20.835,14 €

4.2.4. INSTALLATION OF THE PANELS AND SUBPANELS

Person	Hours	Price (€/h)	Total
Mecanic Worker	40	43	1.720,00 €
Electric Workshop Worker	32	42	1.344,00 €
Electric Worker	128	41	5.248,00 €
Head of work	24	54	1.296,00 €
Necessary elements and other material			10.000,00 €
Total installation of panels and subpanels			19.608,00 €
4.2.5. Total panels and subpanels			230.647,86 €

4.3. OTHER COSTS

Subject	Hours	Price (€/h)	Total
Hours of the engineer	126	62,85	7.919,10 €
Subtotal			506.482,12 €
Subject	Percentage		Total
Industrial benefit	15%		75.972,32 €
Subtotal			582.454,44 €
Subject			
IVA	21%		122.315,43 €

TOTAL	704.769,87 €
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Table 4.1. Budget (Source: Nil Domenech)

The total price of this project is 704.769,87€. The offer is valid until September 2017.

