

REVISIONE	DATA	MODIFICHE	COMPILATO	CONTROLLATO	APPROVATO/ VALIDATO
0	05-05-2014	prima emissione	GD	VB	GS
1	10-06-2014	Aggiornamento	GD	VB	GS
2	04-03-2015	Aggiornamento	GD	VB	GS
3	16-06-2015	Aggiornamento	GD	VB	GS
4					
5					



LAND Milano s.r.l.
Il Direttore Tecnico
Arch. Andreas Kipar



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AECOM

Progettazione esecutiva delle opere di inserimento paesaggistico
e ambientale dei pozzi eni a Marsicovetere: "Sant'Elia 1/Cerro Falcone 7".
Comune di Marsicovetere (Pz)

Progetto Esecutivo
Progetto dell'impianto di illuminazione

Doc. 08

Progettisti:

Collaboratori:

Consulente illuminotecnico:

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Il progetto S.ELIA è un elaborato illuminotecnico complessivo, che copre le esigenze operative del un pozzo.

Lo studio ha, preso in esame le vecchie e le nuove conoscenze dei precedenti lavori, cercando con le informazioni in nostro possesso, di redigere una bozza, il più possibile vicina alle esigenze di questo cantiere.

Per quanto riguarda la scelta degli apparecchi di illuminazione, vengono, anche in questo elaborato, presentate due soluzioni, le stesse descritte al pozzo Volturino 1.

Non si conoscono le esigenze illuminotecniche specifiche di questo pozzo. Inoltre, non abbiamo a disposizione: (a) la classificazione dell'area (che distingue la zone pericolose dalle non pericolose); (b) foto di cantiere; (c) piante della sezione del pozzo.

Lo studio ha preso in esame nelle proposte illuminotecniche nuovi prodotti di illuminazione a led, (per aree con pericolo di esplosione), in quanto ora disponibili e immessi sul mercato dopo il progetto ALLI2.

Questa ricerca si è resa necessaria anche per rispondere alle esigenze di cantiere, di avere gli apparecchi a riaccensione immediata.

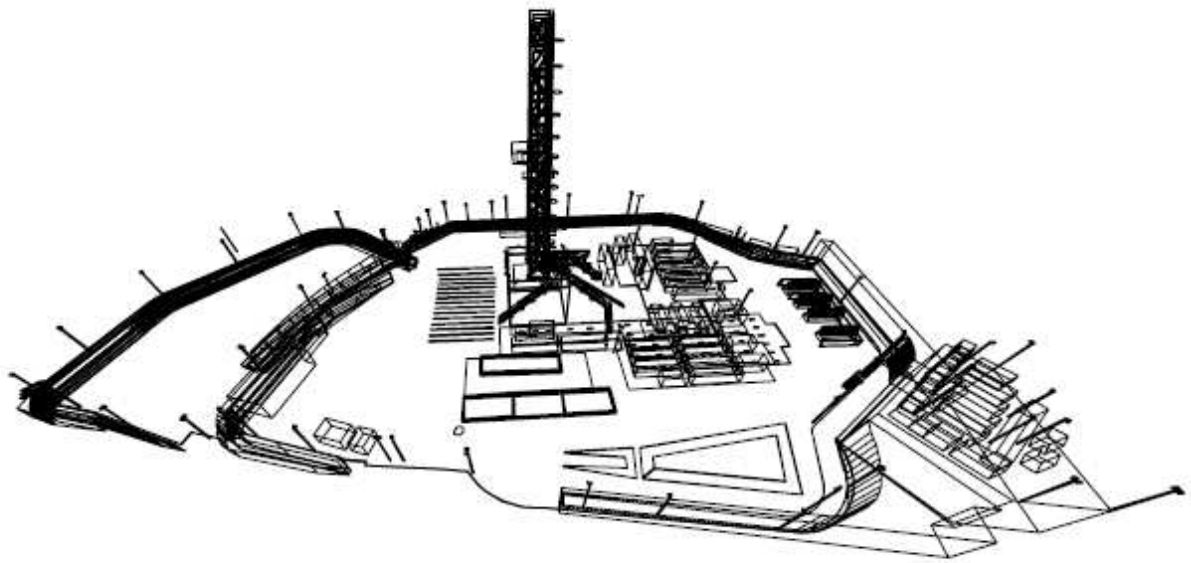
Ricordiamo che i corpi illuminanti con lampade a scarica in gas, presentano alcune problematiche:

- Poche ore di vita della lampada, dalle 5000-8000 ("con basse temperature diminuisce, anche in modo considerevole, l'emissione luminosa e di conseguenza la luce emessa in quanto questo tipo di sorgente ha la sua resa ottimale attorno a +20°C)
- Non possibilità di riaccensione a caldo (occorre aspettare che si raffreddino per poi riaccenderle)
- Elevate temperature di esercizio
- Elevati consumi energetici rispetto alle nuove fonti luminose a led
- Elevata manutenzione e continui ricambi

Le nuove fonti luminose a led, hanno invece grandi vantaggi:

- Lunghe autonomie di vita dalle 50000-60000 ore (non sono influenzate dalle temperature di lavoro esterne)
- Riaccensione istantanea
- Basse temperature di esercizio
- Bassi consumi energetici
- Miglior controllo della luce emessa
- Bassissima manutenzione se non quasi nulla

POZZO S.ELIA / CERRO FALCONE 7
IMPIANTO D'ILLUMINAZIONE
Calcoli illuminotecnici



1.1 Informazioni Area

Superficie	Dimensioni [m]	Angolo°	Colore	Coefficiente Riflessione	Illum.Medio [lux]	Luminanza Media [cd/m ²]
Suolo	-	Piano	RGB=192,192,192	40%	-	-

Dimensioni del Parallelepipedo Contenente l'Area [m]: 2.00x2.00x0.00

2.1 Informazioni Apparecchi/Rilievi

Rif.	Linea	Nome Apparecchio (Nome Rilievo)	Codice Apparecchio (Codice rilievo)	Apparecchi n.	Rif.Lamp.	Lampade n.
A	LED PR-LED	LED PR-LED	LED PR-LED	28	LMP-A	1
B	EWL	ELW-400	ELW	15	LMP-B	1
C	Techned	TNAML236 (TNAML218)	TNAML236 (SPEOSsimulation)	80	LMP-C	2
D	Techned	TNAML236 (TNAML218)	TNAML236 (SPEOSsimulation)	20	LMP-D	2
E	Techned	MAG_Techned_85W (MAG_Techned_85W)	000 (1)	77	LMP-E	2

2.2 Informazioni Lampade

Rif.Lamp.	Tipo	Codice	Flusso lm	Potenza W	Colore K	n.
LMP-A			34000			
LMP-B			18000			
LMP-C			3250			
LMP-D			3350			
LMP-E			3700			

2.3 Tabella Riepilogativa Apparecchi

Rif.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
A	1	X	34.96;-11.64;14.22	0.0;-35.0;90.0	GW84460S	0.80	HQI-E 400/N	1*34000
	2	X	46.21;-23.80;14.20	0.0;-30.0;0.0				
	3	X	35.70;-27.14;14.14	-0.0;35.0;90.0				
	4	X	31.58;-13.98;14.15	0.0;20.0;0.0				
	5	X	31.56;-19.76;14.17	0.0;20.0;0.0				
	6	X	42.44;-27.14;14.13	-0.0;35.0;90.0				
	7	X	31.50;-24.40;14.18	0.0;-21.5;179.6				
	8	X	46.17;-19.28;14.21	0.0;-30.0;0.0				
	9	X	46.20;-15.10;14.20	0.0;-30.0;0.0				
	10	X	39.64;-11.63;14.22	0.0;-35.0;90.0				
	11	X	41.32;-11.64;14.17	0.0;-35.0;90.0				
	12	X	43.98;-11.61;14.17	0.0;-35.0;90.0				
	13	X	21.52;-37.31;9.00	-0.0;56.0;-65.9				
	14	X	80.93;-56.46;9.00	-0.0;52.2;24.4				
	15	X	37.65;-11.64;14.20	0.0;-35.0;90.0				
	16	X	81.13;-55.09;9.00	-0.0;50.8;-39.9				
	17	X	20.80;-37.94;9.00	-0.0;57.4;-44.2				
	18	X	-19.36;-66.77;9.00	-0.0;67.7;-154.6				
	19	X	-19.64;-65.94;9.00	-0.0;73.0;-113.1				
	20	X	56.86;-103.09;9.00	0.0;64.8;-45.8				
	21	X	57.43;-102.59;9.00	-0.0;61.9;-60.4				
	22	X	-1.27;-76.15;9.00	-0.0;39.7;-90.9				
	23	X	-0.99;-76.98;9.00	-0.0;56.1;-173.9				
	24	X	15.65;-101.22;9.00	0.0;57.5;-104.0				
	25	X	16.15;-101.83;9.00	0.0;50.6;-120.4				
	26	X	38.50;-27.10;14.13	-0.0;35.0;90.0				
	27	X	46.24;-26.23;14.20	0.0;-30.0;0.0				
B	1	X	75.39;12.92;9.00	-0.0;59.1;9.6	GW84460S	0.80	NAVE210	1*18000
	2	X	80.00;-7.01;9.00	-0.0;65.7;-25.0				
	3	X	79.94;-7.77;9.00	0.0;69.9;32.4				
	4	X	1.50;41.61;9.00	0.0;67.5;123.7				

POZZO SANTELIA

Rif.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
B	5	X	2.11;42.13;9.00	-0.0;88.3;139.5		0.80		1*18000
	6	X	43.94;36.17;9.00	-0.0;85.4;58.9		0.80		
	7	X	44.74;35.71;9.00	0.0;86.2;107.5		0.80		
	8	X	75.93;12.16;9.00	-0.0;82.6;33.2		0.80		
	9	X	-5.39;13.34;9.00	-0.0;72.3;175.2		0.80		
	10	X	-5.55;12.35;9.00	0.0;87.6;165.3		0.80		
C	1	X	41.48;-20.85;23.68	90.0;0.0;90.3	TNAML236	0.80	L3611	2*3250
	2	X	41.35;-20.79;26.84	90.0;0.0;90.3		0.80		
	3	X	41.25;-20.71;30.15	90.0;0.0;90.3		0.80		
	4	X	41.20;-20.69;33.21	90.0;0.0;90.3		0.80		
	5	X	41.08;-20.57;36.97	90.0;0.0;90.3		0.80		
	6	X	41.03;-20.45;39.64	90.0;0.0;90.3		0.80		
	7	X	40.97;-20.49;43.17	90.0;0.0;90.3		0.80		
	8	X	40.83;-20.44;46.38	90.0;0.0;90.3		0.80		
	9	X	40.75;-20.31;50.12	90.0;0.0;90.3		0.80		
	10	X	40.66;-20.15;53.26	90.0;0.0;90.3		0.80		
	11	X	40.47;-20.07;56.75	90.0;0.0;90.3		0.80		
	12	X	40.20;-21.20;41.88	0.0;-85.0;90.0		0.80		
	13	X	37.85;-21.18;41.89	0.0;-85.0;90.0		0.80		
	14	X	41.83;-17.76;16.15	90.0;0.0;90.3		0.80		
	15	X	36.23;-20.64;16.16	-90.0;0.0;90.3		0.80		
	16	X	36.23;-17.96;16.14	-90.0;0.0;90.3		0.80		
	17	X	34.45;-26.40;14.23	0.0;-85.0;90.0		0.80		
	18	X	34.17;-12.35;14.24	-0.0;85.0;90.0		0.80		
	19	X	37.39;-12.35;14.20	-0.0;85.0;90.0		0.80		
	20	X	43.60;-12.36;14.22	-0.0;85.0;90.0		0.80		
	21	X	41.77;-17.99;15.40	0.0;85.0;0.0		0.80		
	22	X	38.29;-20.36;15.35	0.0;-85.0;0.0		0.80		
	23	X	38.09;-26.38;14.23	0.0;-85.0;90.0		0.80		
	24	X	40.76;-26.38;14.25	0.0;-85.0;90.0		0.80		
	25	X	43.29;-26.41;14.25	0.0;-85.0;90.0		0.80		
	26	X	32.28;-16.84;14.22	0.0;-85.0;0.0		0.80		
	27	X	32.22;-13.87;14.23	0.0;-85.0;0.0		0.80		
	28	X	32.30;-20.14;14.22	0.0;-85.0;0.0		0.80		
	29	X	32.35;-24.03;14.24	0.0;-85.0;0.0		0.80		
	30	X	45.60;-13.46;14.24	0.0;85.0;0.0		0.80		
	31	X	45.58;-16.66;14.24	0.0;85.0;0.0		0.80		
	32	X	45.59;-19.90;14.24	0.0;85.0;0.0		0.80		
	33	X	45.60;-23.95;14.23	0.0;85.0;0.0		0.80		
	34	X	41.04;-18.48;41.89	0.0;85.0;0.0		0.80		
	35	X	37.00;-18.44;41.91	0.0;-85.0;0.0		0.80		
	36	X	11.14;-61.43;6.24	0.0;0.0;0.0		0.80		
	37	X	14.29;-61.48;6.24	0.0;0.0;0.0		0.80		
	38	X	17.56;-61.46;6.24	0.0;0.0;0.0		0.80		
	39	X	20.90;-61.52;6.24	0.0;0.0;0.0		0.80		
	40	X	24.40;-61.63;6.24	0.0;0.0;0.0		0.80		
	41	X	11.13;-56.12;6.24	0.0;0.0;0.0		0.80		
	42	X	11.12;-50.81;6.24	0.0;0.0;0.0		0.80		
	43	X	11.11;-45.49;6.24	0.0;0.0;0.0		0.80		
	44	X	11.10;-40.18;6.24	0.0;0.0;0.0		0.80		
	45	X	14.28;-56.17;6.24	0.0;0.0;0.0		0.80		
	46	X	14.27;-50.85;6.24	0.0;0.0;0.0		0.80		
	47	X	14.26;-45.54;6.24	0.0;0.0;0.0		0.80		
	48	X	14.25;-40.23;6.24	0.0;0.0;0.0		0.80		
	49	X	17.55;-56.15;6.24	0.0;0.0;0.0		0.80		
	50	X	17.54;-50.83;6.24	0.0;0.0;0.0		0.80		
	51	X	17.53;-45.52;6.24	0.0;0.0;0.0		0.80		
	52	X	17.52;-40.21;6.24	0.0;0.0;0.0		0.80		
	53	X	20.89;-56.21;6.24	0.0;0.0;0.0		0.80		
	54	X	20.88;-50.89;6.24	0.0;0.0;0.0		0.80		
	55	X	20.87;-45.58;6.24	0.0;0.0;0.0		0.80		
	56	X	20.86;-40.27;6.24	0.0;0.0;0.0		0.80		
	57	X	24.39;-56.32;6.24	0.0;0.0;0.0		0.80		
	58	X	24.38;-51.01;6.24	0.0;0.0;0.0		0.80		
	59	X	24.37;-45.69;6.24	0.0;0.0;0.0		0.80		
	60	X	24.36;-40.38;6.24	0.0;0.0;0.0		0.80		
	61	X	23.63;-36.04;6.24	0.0;0.0;0.0		0.80		
	62	X	23.44;-21.25;6.24	0.0;0.0;0.0		0.80		
	63	X	23.31;-14.76;6.24	0.0;0.0;0.0		0.80		
	64	X	23.58;-26.45;6.24	0.0;0.0;0.0		0.80		
	65	X	41.69;-20.87;20.39	90.0;0.0;90.3		0.80		

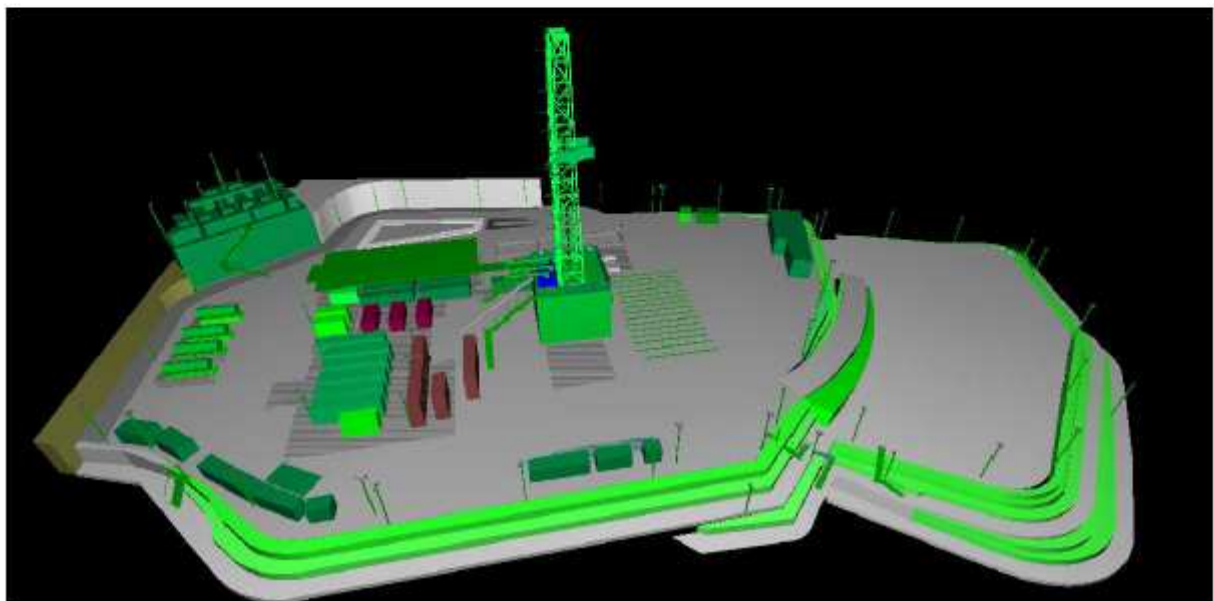
POZZO SANTELIA

Rif.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
C	66	X	24.36;-65.93;6.24	0.0;0.0;0.0	TNAML236	0.80	L3611	2*3250
	67	X	17.52;-65.75;6.24	0.0;0.0;0.0		0.80		
	68	X	11.10;-65.73;6.24	0.0;0.0;0.0		0.80		
	69	X	40.35;-12.33;14.23	-0.0;65.0;90.0		0.80		
	70	X	11.10;-71.09;6.24	0.0;0.0;0.0		0.80		
	71	X	14.25;-65.69;6.24	0.0;0.0;0.0		0.80		
	72	X	20.83;-65.76;6.24	0.0;0.0;0.0		0.80		
	73	X	13.79;-71.09;6.24	0.0;0.0;0.0		0.80		
	74	X	16.47;-71.09;6.24	0.0;0.0;0.0		0.80		
	75	X	19.16;-71.09;6.24	0.0;0.0;0.0		0.80		
	76	X	21.84;-71.09;6.24	0.0;0.0;0.0		0.80		
	77	X	24.53;-71.09;6.24	0.0;0.0;0.0		0.80		
	78	X	23.58;-31.19;6.24	0.0;0.0;0.0		0.80		
	79	X	23.35;-18.06;6.24	0.0;0.0;0.0		0.80		
	80	X	41.83;-19.94;16.12	90.0;0.0;90.3		0.80		
D	1	X	60.77;-48.97;3.83	0.0;-25.0;90.0		0.80		
	2	X	54.46;-48.95;3.83	0.0;-25.0;90.0		0.80		
	3	X	48.10;-49.03;3.83	0.0;-25.0;90.0		0.80		
	4	X	61.46;-59.89;3.83	0.0;15.0;0.0		0.80		
	5	X	26.28;-48.82;3.83	0.0;-15.0;0.0		0.80		
	6	X	26.44;-53.70;3.83	0.0;-15.0;0.0		0.80		
	7	X	26.41;-59.20;3.83	0.0;-15.0;0.0		0.80		
	8	X	26.53;-64.54;3.83	0.0;-15.0;0.0		0.80		
	9	X	57.76;-59.88;3.83	0.0;15.0;0.0		0.80		
	10	X	54.05;-59.88;3.83	0.0;15.0;0.0		0.80		
	11	X	50.35;-59.87;3.83	0.0;15.0;0.0		0.80		
	12	X	46.64;-59.86;3.83	0.0;15.0;0.0		0.80		
	13	X	42.94;-59.86;3.83	0.0;15.0;0.0		0.80		
	14	X	39.24;-59.85;3.83	0.0;15.0;0.0		0.80		
	15	X	39.29;-67.40;3.83	0.0;15.0;0.0		0.80		
	16	X	42.99;-67.41;3.83	0.0;15.0;0.0		0.80		
	17	X	46.70;-67.42;3.83	0.0;15.0;0.0		0.80		
	18	X	50.40;-67.42;3.83	0.0;15.0;0.0		0.80		
	19	X	54.11;-67.43;3.83	0.0;15.0;0.0		0.80		
	20	X	57.81;-67.44;3.83	0.0;15.0;0.0		0.80		
E	1	X	44.56;-52.00;8.00	-0.0;-15.0;-90.0	000	0.70	HPL-N80W/542	2*3700
	2	X	53.49;-51.99;8.00	-0.0;-15.0;-90.0		0.70		
	3	X	63.92;-51.97;8.00	-0.0;-15.0;-90.0		0.70		
	4	X	33.42;-73.75;8.03	-0.0;-15.0;-90.0		0.70		
	5	X	45.57;-69.09;8.00	-0.0;-15.0;-90.0		0.70		
	6	X	60.20;-68.92;9.00	-0.0;-15.0;-90.0		0.70		
	7	X	60.19;-94.74;9.00	-0.0;15.0;-25.0		0.70		
	8	X	60.79;-95.09;9.00	-0.0;15.0;150.0		0.70		
	9	X	75.66;-74.59;9.00	-0.0;15.0;-25.0		0.70		
	10	X	76.40;-74.93;9.00	-0.0;15.0;150.0		0.70		
	11	X	68.95;-86.59;4.12	0.0;15.0;50.5		0.70		
	12	X	82.73;-53.53;9.00	0.0;13.0;0.0		0.70		
	13	X	83.56;-53.50;9.00	-0.0;15.0;180.0		0.70		
	14	X	82.49;-32.74;9.00	0.0;13.0;0.0		0.70		
	15	X	83.32;-32.71;9.00	-0.0;15.0;180.0		0.70		
	16	X	82.24;-11.95;9.00	0.0;13.0;0.0		0.70		
	17	X	83.07;-11.92;9.00	-0.0;15.0;180.0		0.70		
	18	X	80.12;7.58;9.00	0.0;12.0;45.7		0.70		
	19	X	80.75;8.19;9.00	-0.0;12.0;-134.0		0.70		
	20	X	88.95;2.01;3.19	0.0;13.0;0.0		0.70		
	21	X	89.78;1.99;3.19	-0.0;15.0;180.0		0.70		
	22	X	81.03;17.24;3.22	0.0;12.0;45.7		0.70		
	23	X	81.51;17.65;3.27	-0.0;12.0;-134.0		0.70		
	24	X	76.99;28.45;2.20	-0.0;15.0;145.0		0.70		
	25	X	76.45;28.79;2.20	0.0;12.0;-34.2		0.70		
	26	X	88.48;46.61;2.20	0.0;12.0;-34.2		0.70		
	27	X	89.10;46.24;2.20	-0.0;15.0;145.0		0.70		
	28	X	88.08;61.77;2.20	-0.0;3.1;41.1		0.70		
	29	X	88.55;62.17;2.20	-0.0;7.2;-139.0		0.70		
	30	X	73.19;78.47;2.20	-0.0;7.2;-139.0		0.70		
	31	X	57.83;94.77;2.20	-0.0;7.2;-139.0		0.70		
	32	X	72.72;78.07;2.20	-0.0;3.1;41.1		0.70		
	33	X	57.36;94.38;2.20	-0.0;3.1;41.1		0.70		
	34	X	34.88;102.19;2.20	0.0;2.7;71.2		0.70		
	35	X	35.07;102.69;2.20	0.0;6.2;-108.8		0.70		
	36	X	83.64;31.51;-2.29	0.0;3.0;56.1		0.70		

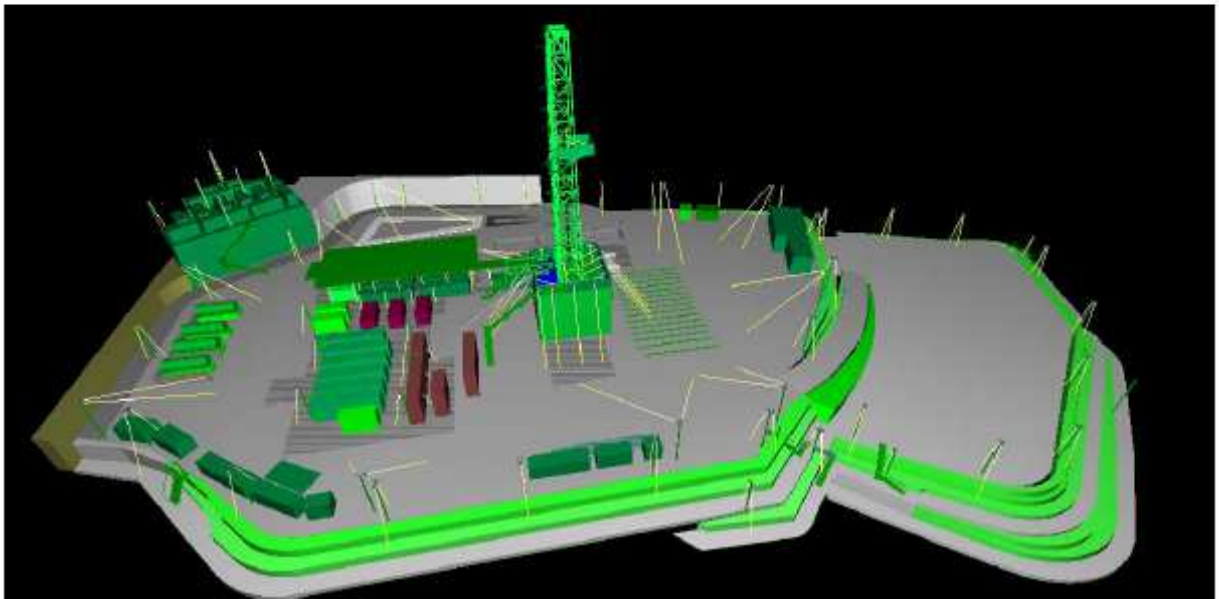
POZZO SANTELIA

Rif.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
E	37	X	23.63;110.27;-2.29	0.0;3.0;0.0	000	0.70		2'3700
	38	X	15.87;93.26;2.20	-0.0;10.4;-12.0		0.70		
	39	X	16.51;93.06;2.20	0.0;13.0;165.9		0.70		
	40	X	8.81;76.22;2.20	-0.0;10.4;-12.0		0.70		
	41	X	9.45;76.02;2.20	0.0;13.0;165.9		0.70		
	42	X	6.08;57.54;2.20	0.0;13.0;165.9		0.70		
	43	X	5.15;57.67;2.20	-0.0;10.4;-12.0		0.70		
	44	X	58.42;25.51;9.00	0.0;12.0;45.7		0.70		
	45	X	59.05;26.12;9.00	-0.0;12.0;-134.0		0.70		
	46	X	39.17;40.12;9.00	0.0;12.0;45.7		0.70		
	47	X	39.80;40.73;9.00	-0.0;12.0;-134.0		0.70		
	48	X	18.92;46.72;9.00	0.0;10.4;76.3		0.70		
	49	X	19.14;47.41;9.00	-0.0;10.4;-103.5		0.70		
	50	X	2.69;44.70;9.00	-0.0;14.5;165.5		0.70		
	51	X	-2.30;28.76;9.00	-0.0;14.5;165.5		0.70		
	52	X	-5.44;10.19;9.00	-0.0;14.5;180.0		0.70		
	53	X	-8.62;-3.73;9.00	-0.0;14.5;180.0		0.70		
	54	X	-9.63;-3.66;9.00	0.0;-14.5;180.0		0.70		
	55	X	-16.28;-24.84;9.00	0.0;12.5;170.2		0.70		
	56	X	-19.07;-37.89;9.00	0.0;12.5;170.2		0.70		
	57	X	-22.68;-59.04;9.00	0.0;12.5;170.2		0.70		
	58	X	-15.92;-75.79;9.00	0.0;16.4;-120.8		0.70		
	59	X	-16.28;-76.32;9.00	-0.0;11.1;58.2		0.70		
	60	X	3.04;-83.04;9.00	-0.0;14.8;-144.9		0.70		
	61	X	2.37;-83.40;9.00	-0.0;6.3;34.3		0.70		
	62	X	14.41;-100.24;9.00	-0.0;14.8;-144.9		0.70		
	63	X	13.74;-100.60;9.00	-0.0;6.3;34.3		0.70		
	64	X	36.05;-103.08;9.00	0.0;10.5;-90.0		0.70		
	65	X	36.00;-103.62;9.00	-0.0;7.7;91.0		0.70		
	66	X	-23.41;-92.60;19.00	-0.0;2.4;180.0		0.70		
	67	X	-24.04;-92.78;19.00	0.0;2.7;0.0		0.70		
	68	X	-26.18;-105.66;19.00	0.0;2.7;0.0		0.70		
	69	X	-25.56;-105.70;19.00	-0.0;2.4;180.0		0.70		
	70	X	2.62;-109.36;19.00	0.0;4.2;-90.0		0.70		
	71	X	-13.01;-95.81;19.00	-0.0;3.3;-147.6		0.70		
	72	X	-14.11;-100.69;19.00	0.0;1.7;37.1		0.70		
	73	X	-2.51;-94.10;19.00	0.0;3.0;26.6		0.70		
	74	X	-8.26;-103.32;19.00	-0.0;3.3;-147.6		0.70		
	75	X	2.93;-102.23;19.00	0.0;3.0;26.6		0.70		
	76	X	-7.34;-86.38;19.00	0.0;3.0;26.6		0.70		
	77	X	2.54;-95.13;19.00	-0.0;3.3;-147.6		0.70		

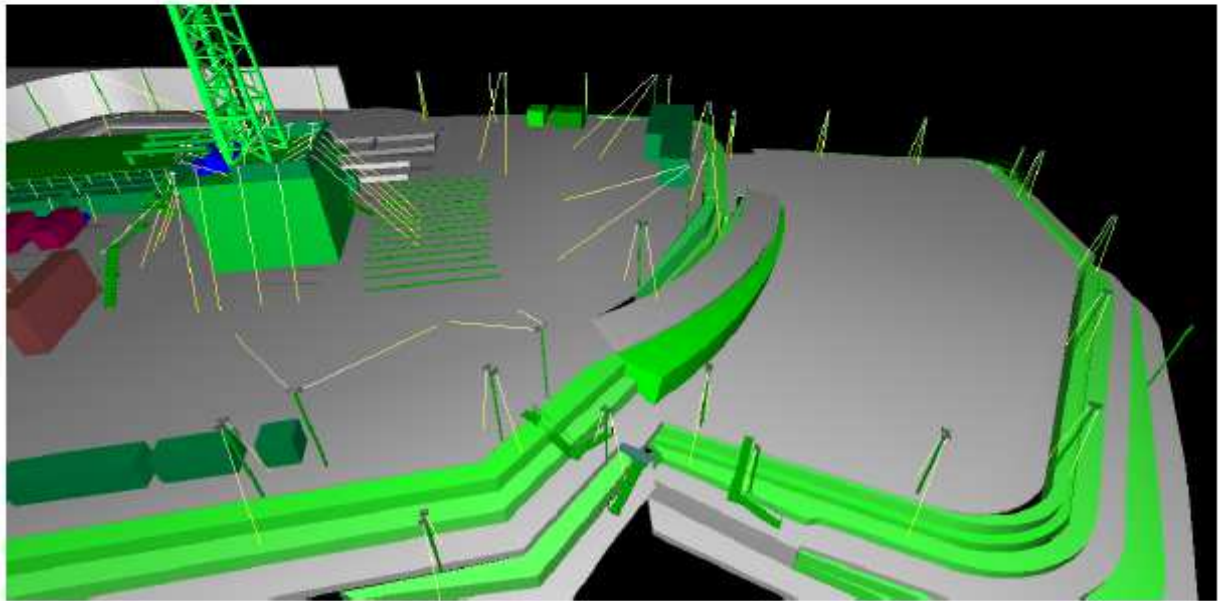
3.1 Immagine: Screenshot_001



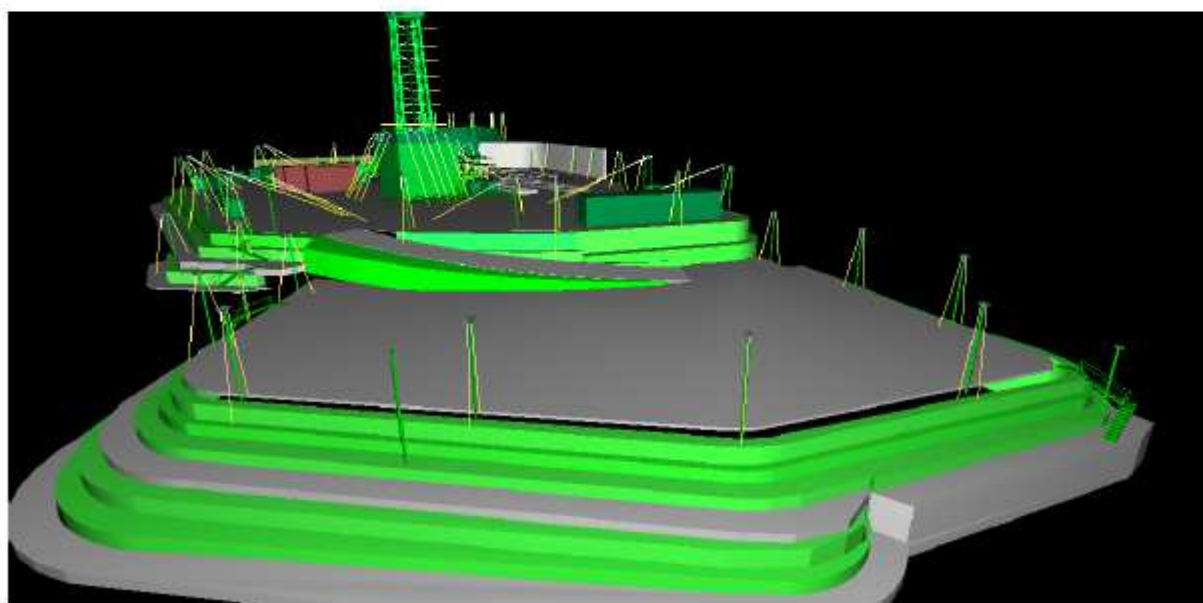
3.2 Immagine: Screenshot_002



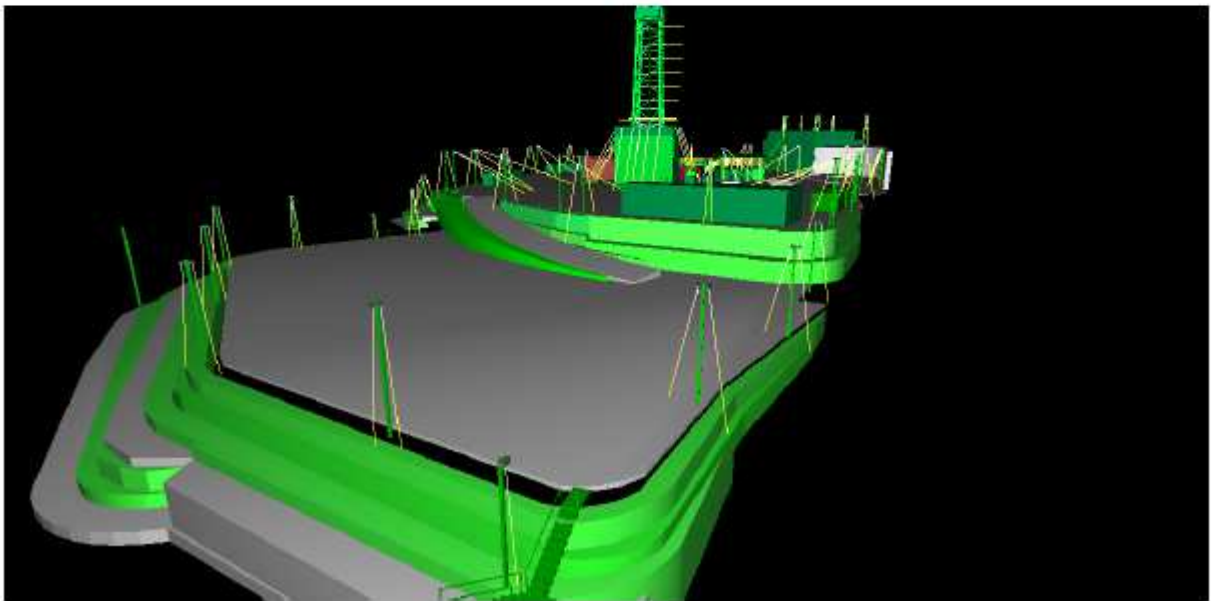
3.3 Immagine: Screenshot_003



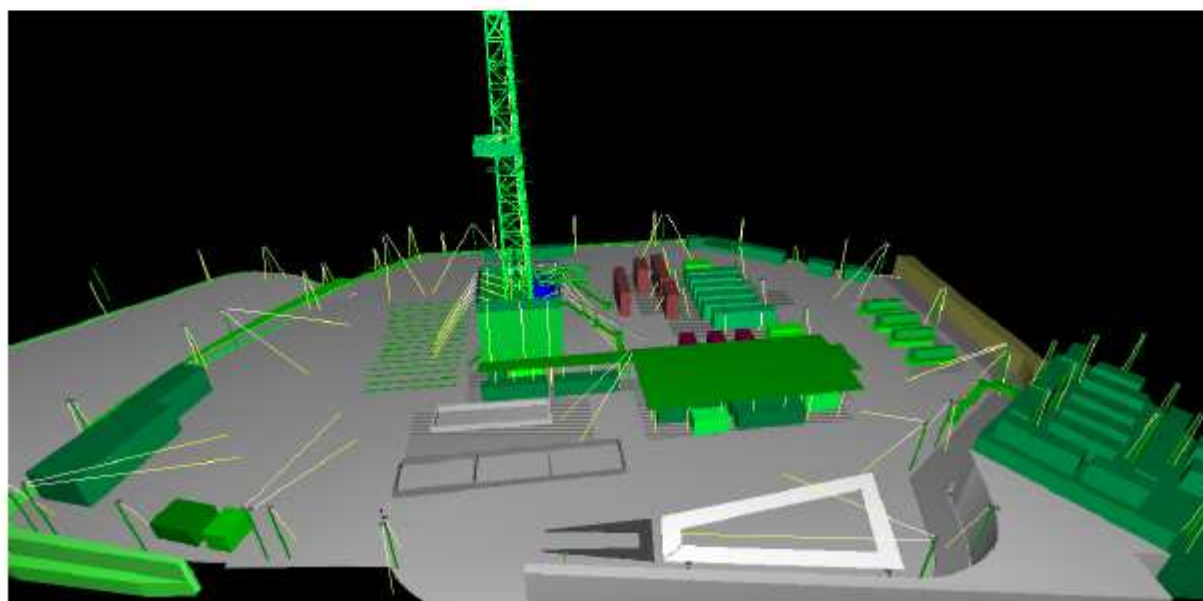
3.4 Immagine: Screenshot_004



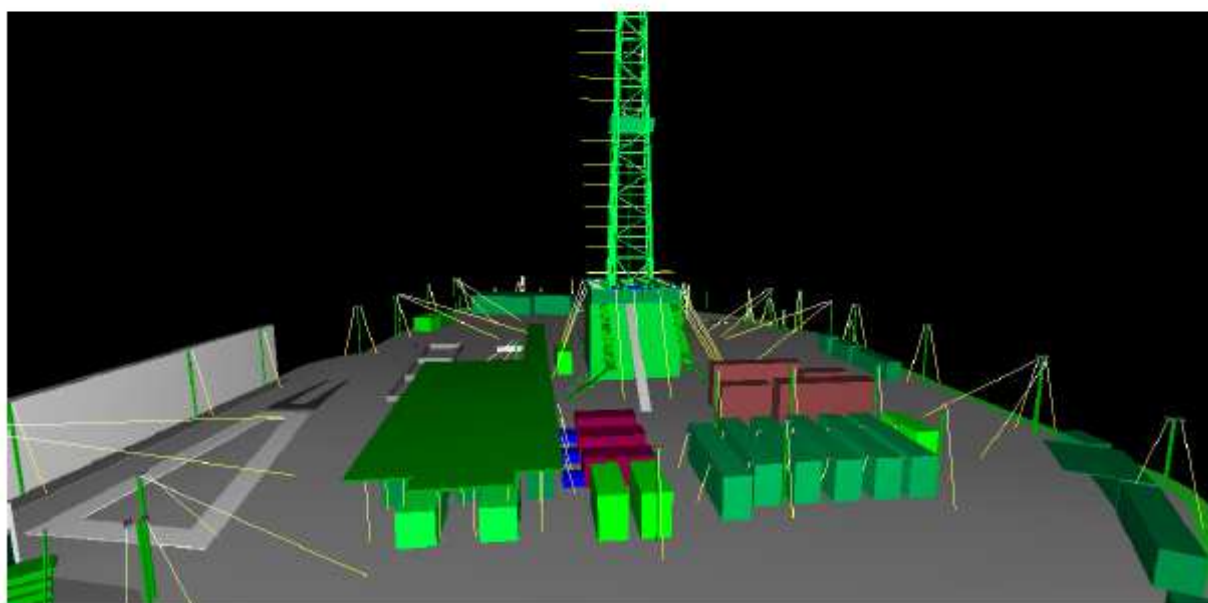
3.5 Immagine: Screenshot_005



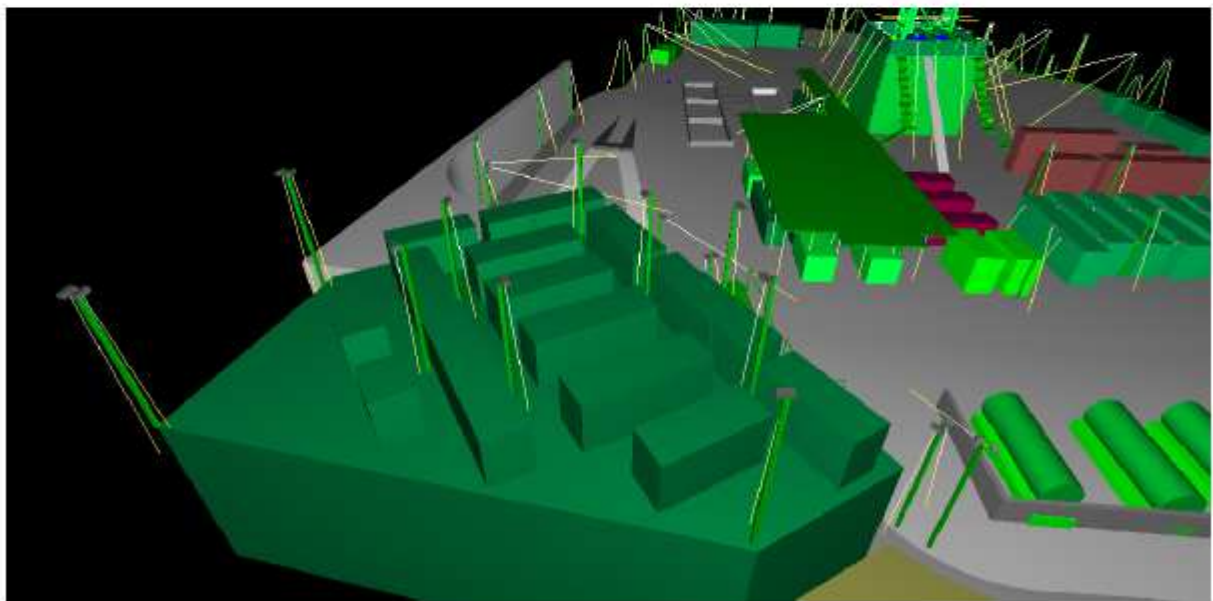
3.6 Immagine: Screenshot_006



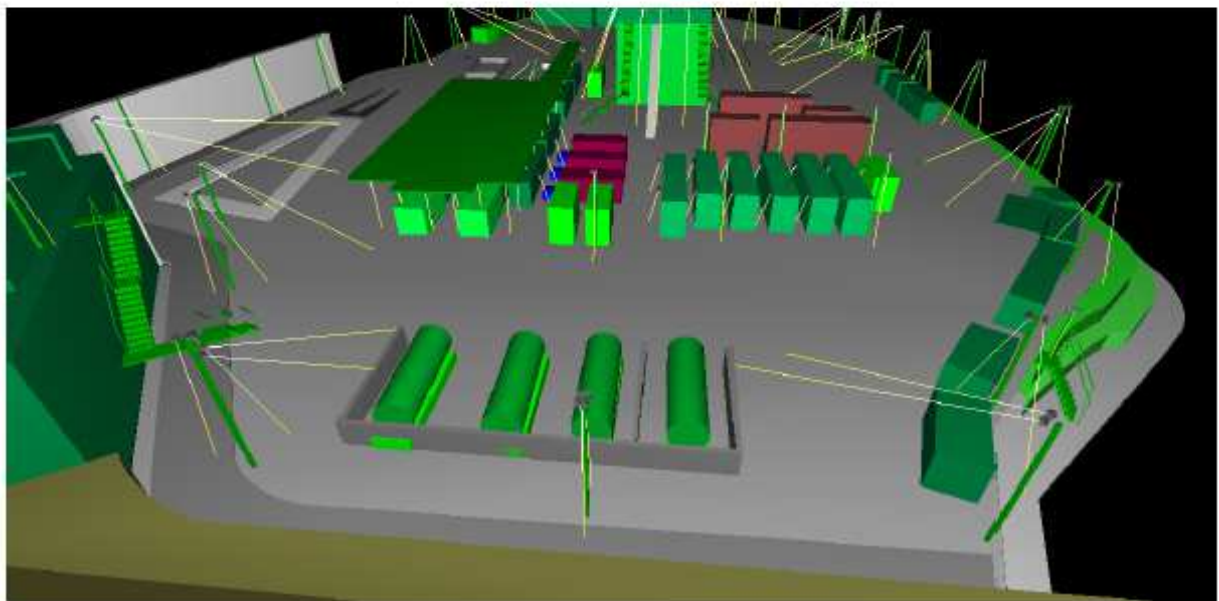
3.7 Immagine: Screenshot_007



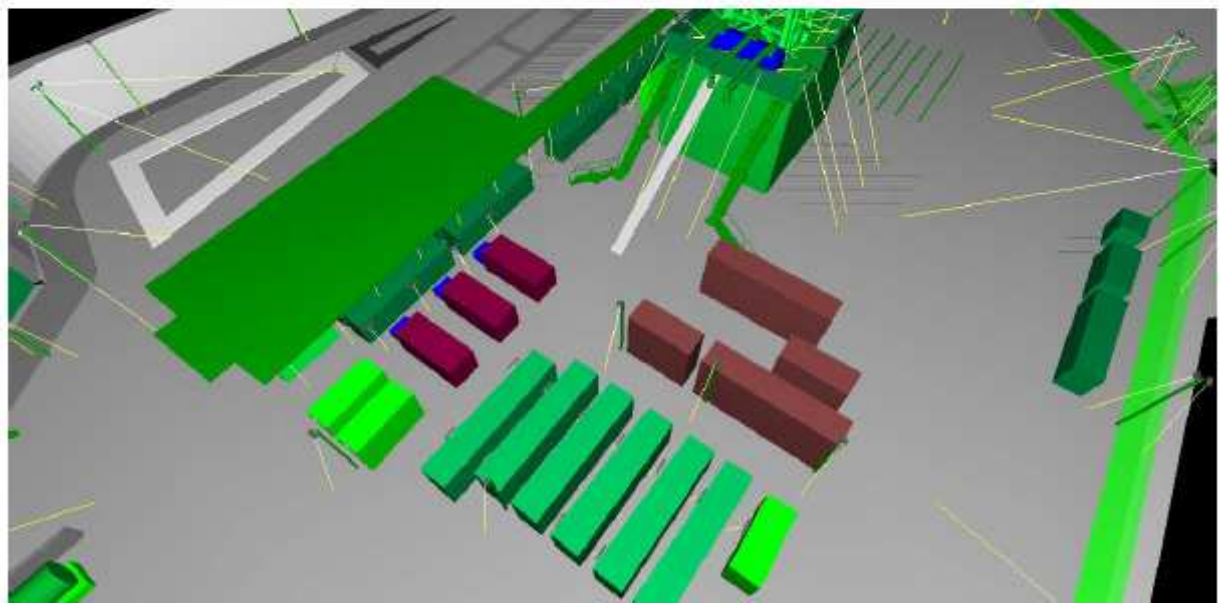
3.8 Immagine: Screenshot_008



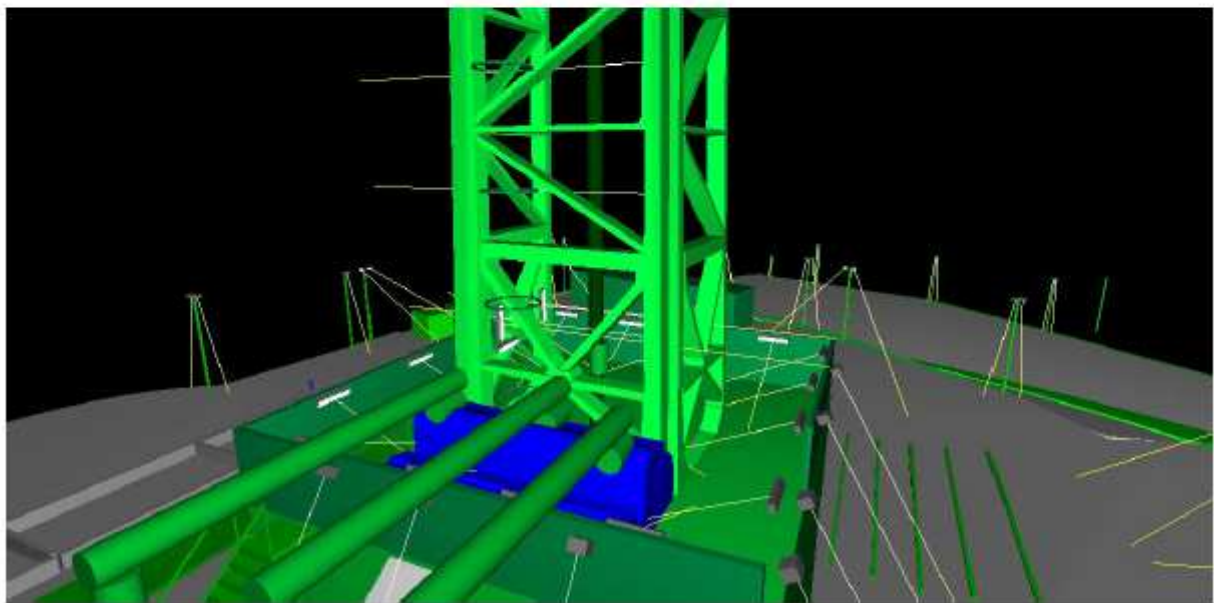
3.9 Immagine: Screenshot_009



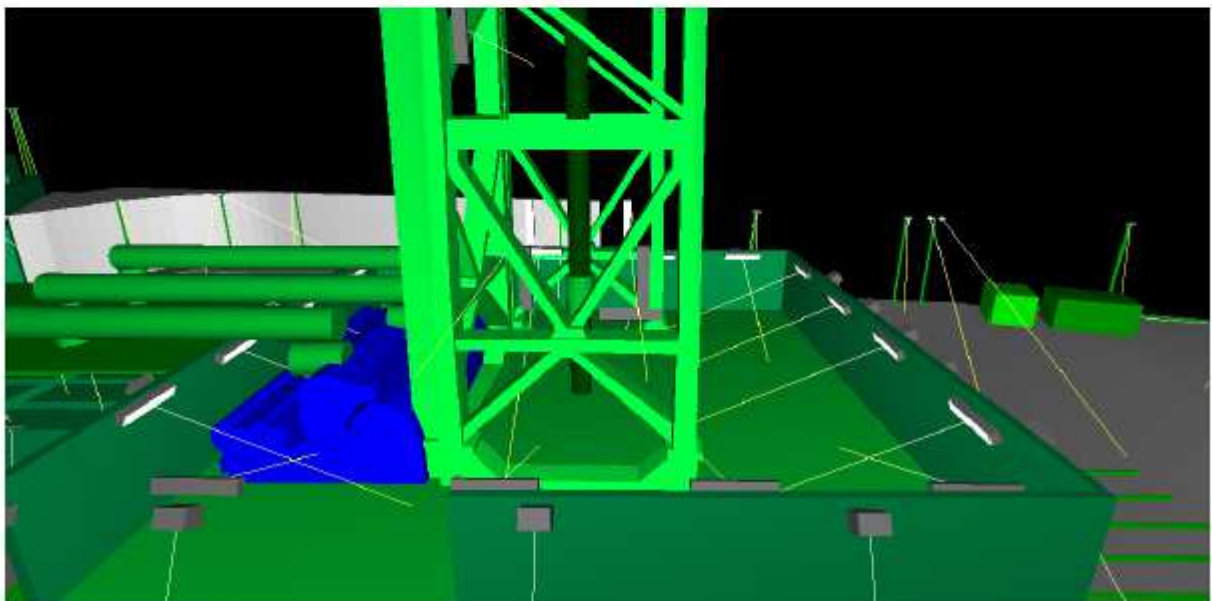
3.10 Immagine: Screenshot_010



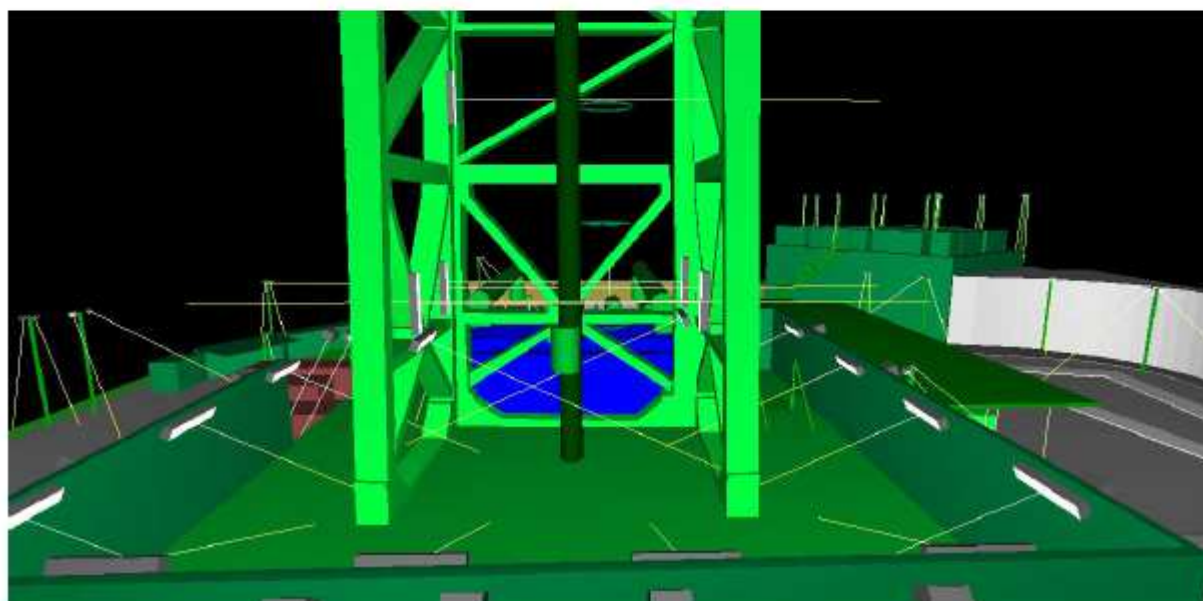
3.11 Immagine: Screenshot_011



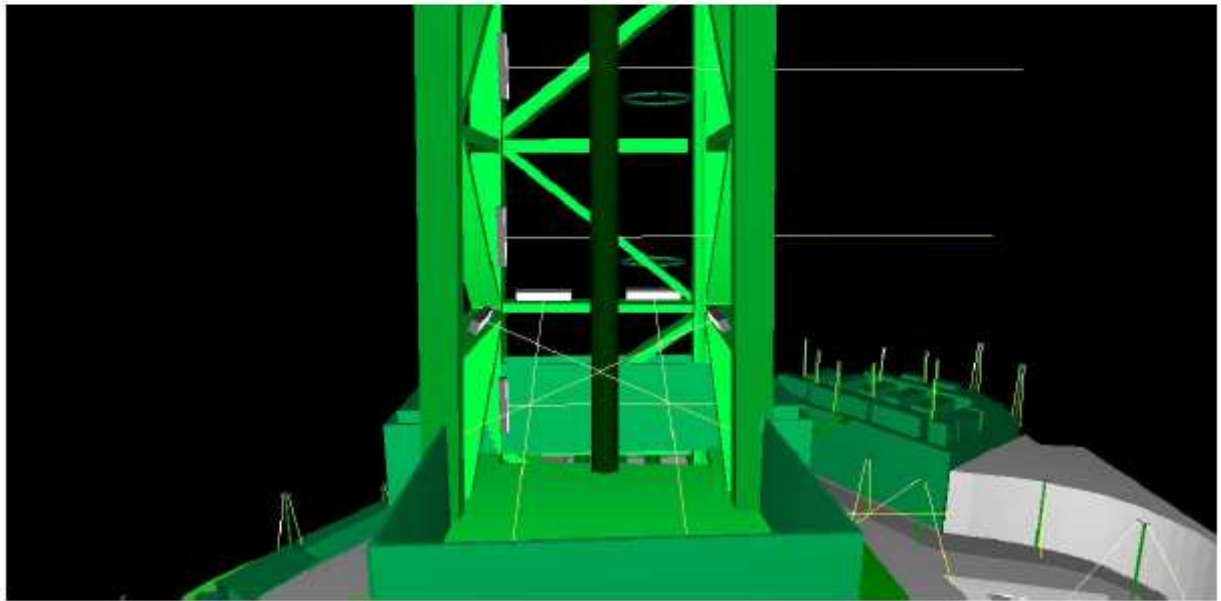
3.12 Immagine: Screenshot_012



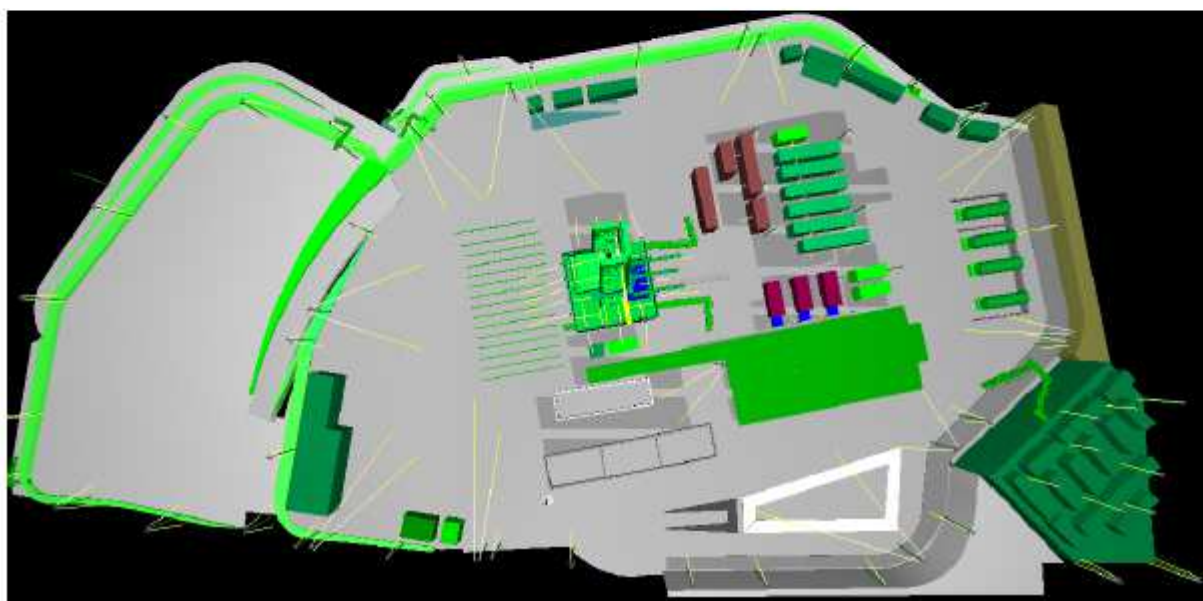
3.13 Immagine: Screenshot_013



3.14 Immagine: Screenshot_014



3.15 Immagine: Screenshot_015



POZZO S.ELIA / CERRO FALCONE 7
IMPIANTO D'ILLUMINAZIONE
Schede tecniche

Armatura per esterno per attacco a palo orientabile tipo MAG 165 Techned Benelux con lampada ad induzione da 165W tipo QL 165 LUCE BIANCA 4000° / 5000° , 11000 lumen, "permanentemente sigillata- sealed for life " garantita maintenance free per 80.000 ore e con garanzia di 10 Anni. Riaccensione a caldo immediata

TECHNOR
BENELUX



MAG series

80.000 hours maintenance free – 10 years warranty
Industrial street lighting fixture

The MAG-series is a range of street lighting fixtures with a **guaranteed long life time (maintenance free)** with a wide range of applications. The used materials make this lighting fixtures suitable for use in aggressive environments and applications where there are lot of vibrations. The lens is made of tempered glass having the advantage that it is not affected by UV radiation / discoloring and cannot be statically charged. This means that dirt will not set on the lens as is the case with traditional polycarbonate lenses. The lighting fixture is standard foreseen with 12 meter QWPK cable 3x2,5sqmm and is sealed for life. All lighting fixtures of the MAG series are supplied complete with light source and ballast. Using a ingenious mounting system for both straight and curved poles with a wide range of diameters. Adding these points (pre mounted lamp, ballast and cable) up this will save approx. 1 hour in installation when comparing with traditional street lighting fixtures.



Features:

- + Maintenance free
- + Sealed for life
- + No light pollution
- + Fit & forget
- + 10 year warranty on operation

Applications:

- + General area lighting
- + Harbors
- + Railway emplacements
- + Railway stations
- + Locks
- + Industrial zones

TECHNOR

BENELUX

Specifications:

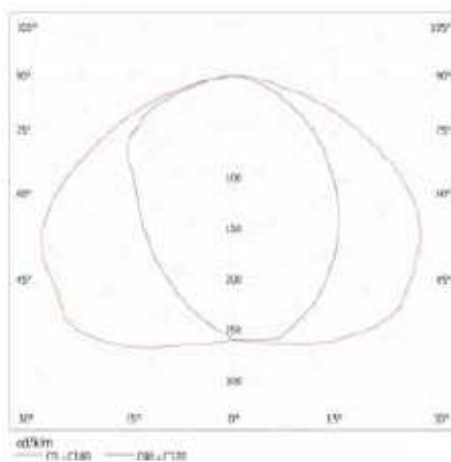
Housing:	Phosphated seawater resistant aluminium, RAL1001
Cover:	Tempered glass
Light source:	Induction lamp 85 or 165W – 4000K
IP rating:	IP65
Ambient temperature range:	-40°C up to +40°C
Power supply:	200-277V 50/60Hz
Electrical connection:	12 meter flying lead QWPK 3x2,5sqmm
Mounting:	Suitable for diameters 42 up to 80mm
Wind exposed surface:	Frontal: 0,08sqm and Lateral: 0,14sqm

Optional:

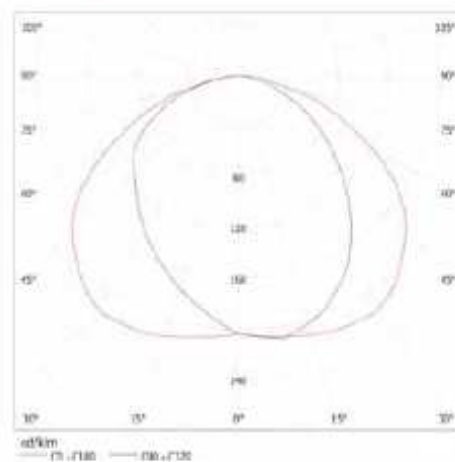
- + Zone 2 execution
- + Induction lamps with 3000K
- + Housing in other RAL colors
- + 110V



MAG 85W



MAG 165W

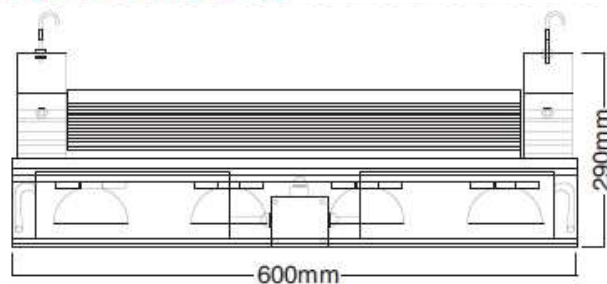
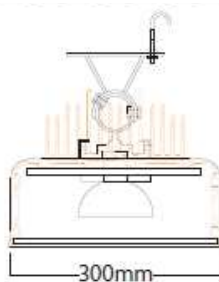


TYPE:	LIGHT SOURCE:	POWER SUPPLY:	DIMENSIONS:	WEIGHT:
MAG 85W	QL 85	200-264V 50/60Hz	670 X 350 X 215	11 kg
MAG 165W	QL 165	200-264V 50/60Hz	670 X 350 X 215	13 kg

APPARECCHIO ILLUMINANTE TECHNED 300/ P con 4 Unità LEDs con ottica da definire un base alla posizione sull'impianto COMPLETO DI ALIMENTATORI 240V 60Hz (riaccensione immediata) e di kit testapalo per innesto diametro 60mm

APPARECCHIO ILLUMINANTE TECHNED 300/ S con 4 Unità LEDs con ottica concentrante per montaggio su torre trivella COMPLETO DI ALIMENTATORI 240V 60Hz (riaccensione immediata) e di kit di montaggio a struttura con ammortizzatori Vibrostop

TECHNED



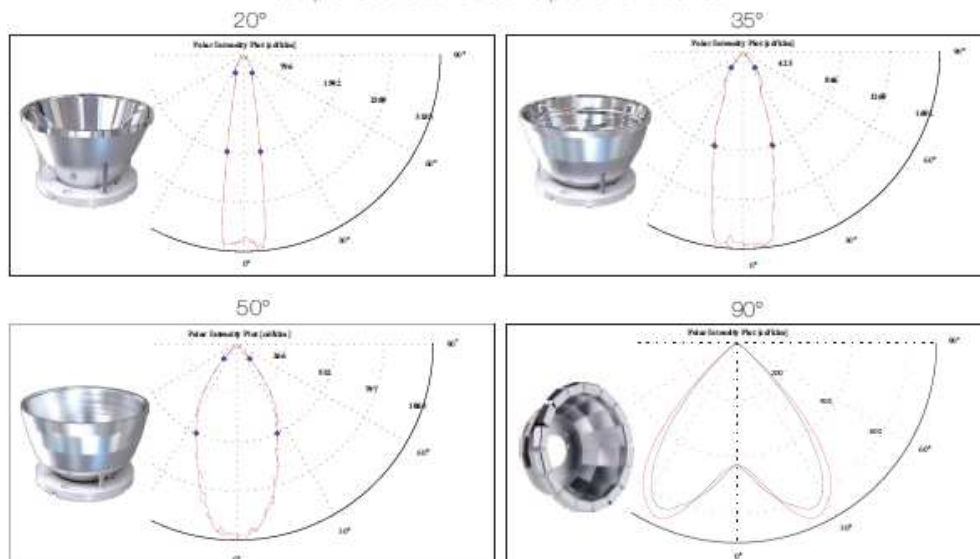
Dati Tecnici

- IP 65
- Classe di Isolamento: I
- Corpo Estrusione di Alluminio Anodizzato
- Schermo Vetro Temperato (Acrilico)
- Potenza Assorbita: 220 ÷ 260 W
- Tensione: 230 v - 50 hz
- N° 4 Led da 60 W / 8000 Lumen (32.000)
- Dimensioni: 600 X 290 X 300
- Peso: 14,5 kg
- Temperatura ambiente: -15° ÷ +50°
- Vita media a led: 50.000h (70% flusso)

Data Sheet

- IP 65
- Insulation Class: I
- Body Aluminium Extrusion
- Tempered Glass (Acrylic)
- Power: 220 ÷ 260 W
- Voltage: 230 v - 50 hz
- N° 4 Led 60 W / 8000 Lumen (32.000)
- Dimension: 600 X 290 X 300
- Weight: 14,5 kg
- Ambient temperature: -15° ÷ +50°
- Led average life: 50.000h (70% output)

Esempi di alcune curve / Some photometric curves



Proiettore EWL per aree classificate 1-21 (2-22 ridondante) con fonte luminosa led, riaccensione a caldo, 12000 Lumen, 240V 60HZ ,completo di presscavo per cavo non armato PNA-2-A.. M25, tappo in aisi316 con occhiello per attacco fune di guardia

TECHNO



APPARECCHI A LED
EQUIPMENT FOR ATEX LED LIGHTING FIXTURES



EWL



GAS	II2G Ex de IIC T5 + T4	Gb	IP66	Zone 1 - Zone 21 - Zone 2 - Zone 22
DUST	II2D Ex tb IIIC T95°C + T130°C	Db	IP66	⊖-20°C + ⊕+40°C ⊖-20°C + ⊕+60°C

Materiale: corpo : lega leggera
trasparente : vetro piano temperato

Installazione: universale con staffa in acciaio inox AISI 304

Viteria: Acciaio inox AISI 304

Guarnizioni: +40°C EPDM, +60°C Silicone

Collegamento: Morsetteria Ex e

Ingresso: N° 1 ø3/4"

Peso: 7+16 kg

Materiale: body : light alloy
transparent : tempered flat glass

Installation: universal with stainless steel AISI 304 bracket

Hardware: Stainless steel AISI 304

Gaskets: +40°C EPDM, +60°C Silicon

Connection: Ex e II Terminals

Cable entry: N° 1 ø3/4"

Weight: 7+16 kg

Future Proof



Potenza: Vedi tabella

Tensione: 24Vdc - 110+230Vac

Frequenza: 50Hz + 60Hz

Morsetteria: 2,5mm²

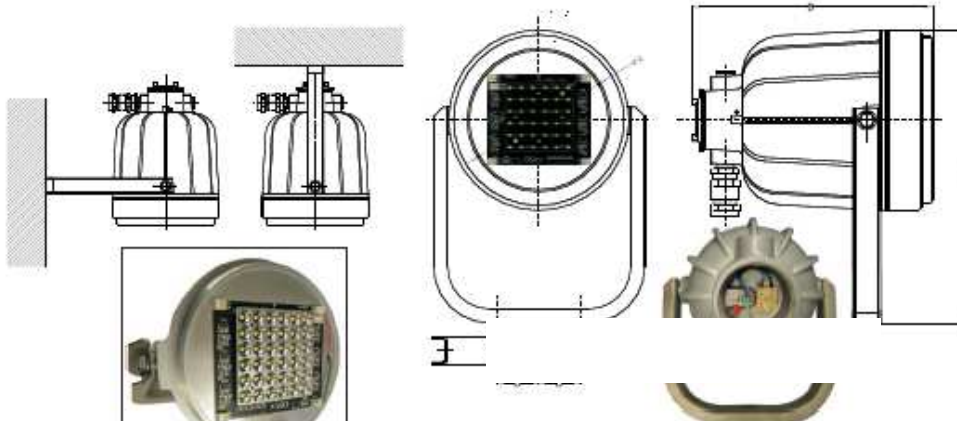
Power: See table

Voltage: 24Vdc - 110+230Vac

Frequency: 50Hz + 60Hz

Terminals: 2,5mm²

Codice Code	[W] [W]	ØA	B	C	D	ØE	N° led Led N°	Fusso [lm] Flux [lm]	colore [k] color [k]	Irragg. Radiance	Tensione [V] Voltage [V]	T class @+40°C	T class @+60°C	Peso[kg] Weight [kg]
EWL 12524	70	140	285	300	35	11	36	6000	6500	150°	24Vdc	T5	T4	7,0
EWL 25024	-	140	285	300	35	11	-	-	-	-	-	-	-	-
EWL 40024	120	200	345	425	60	13	60	12.000	6500	150°	24Vdc	T5	T4	14,0
EWL 125240	70	140	285	300	35	11	36	6000	6500	150°	110+240Vac	T5	T4	7,3
EWL 250240	-	140	285	300	35	11	-	-	-	-	-	-	-	-
EWL 400240	120	200	345	425	60	13	60	12.000	6500	150°	110+240Vac	T5	T4	16,0



Lente secondaria 12" a richiesta
Secondary 12" lens on demand

SOLUZIONE 2

J2

141012

Armatura per esterno in area classificata Zona 1/21 / ridondante 2 /22) in esecuzione Ex e mb, Ex tD A21 Gruppo II Categoria 2 G D secondo Atex 94-9-CE e successivi aggiornamenti, tipo TNAML-1236A1A. a tubi fluorescenti long life 2 x 36W , 220-264 VAC 50/ 60HZ. (riaccensione a caldo).
 "permanentemente sigillata- sealed for life " garantita maintenance free per 80.000 ore e con garanzia di 10 Anni



TNAML® zone 1



Ex e mb II, Ex tD A21

Maintenance Free Fluorescent Luminaire



Features:

- + 100% encapsulated, maintenance free design requiring only visual inspection to IEC/EN 60079-17
- + In accordance with ATEX regulations
- + 10 years operational warranty* assures favourable total cost of ownership
- + Easy and flexible installation
- + Fit & Forget
- + Seawater resistant anodized aluminium (in accordance with NORSOK 121)
- + Tempered glass, very high impact resistant, IK 20 (20 joules)
- + Fully recyclable, environmental friendly product
- + High light output efficiency (>80%) i.e. less luminaires required for same lighting level
- + Available with 2x18W / 2x36W / 2x58W lamps
- + Optional battery powered, 90/180 minutes functionality, battery functionality -40°C to +30°C
- + Emergency lighting by LED
- + Self-locking device for cable gland nuts
- + Self-cleaning glass
- + No condensation
- + Safety wire connection
- + 100% Leakage test
- + Clean room recessed mounting system
- + HACCP approved for food applications
- + Black start for unmanned platforms

*Conditions apply

Characteristics:

- + Maintenance free (visual inspection only)
- + Sealed-for-life concept
- + Fit and forget
- + 10 years operational warranty*
- + 84.000 hours functionality*
- + Patented design
- + Vibration test by Thales (detailed report available on request available)
 - Standard: IEC60721-2-3 Ed 1.0 and IEC68-2-6
 - Frequency range: 1 - 150 Hz
 - Amplitude: 5mm (1 to 10 Hz)
 - Acceleration: 2 gn (10 to 150 Hz)
 - Sweep rate: 1 octave per minute
 - sweep cycles: 10
 - directions: 3



General specifications:

Modes of protection:	Ex e mb, Ex tD A21
ATEX classification:	Group II Category 2 G D
Zones:	1, 2, 21, 22
Applied standards:	EN 60079-0, EN 60079-7, EN 60079-18, EN/IEC 61241-0, EN/IEC 61241-14 C11 IEC 60068-2-75, ROHS Directive 2002/95/EC, REACH Directive 2006/121/EC EMC Directive 2004/108/EC
Certificate:	DEKRA 11ATEX0133
Ex code:	Gas II 2 G Ex e mb II T6 Dust II 2 D Ex tD A21 IP68 T80°C
Inspection:	Visual inspection in accordance with EN/IEC 60079-17
HACCP:	Stated by DEKRA 06540-QUA/EX
Ingress protection:	IP 68 by attest DEKRA 211978700

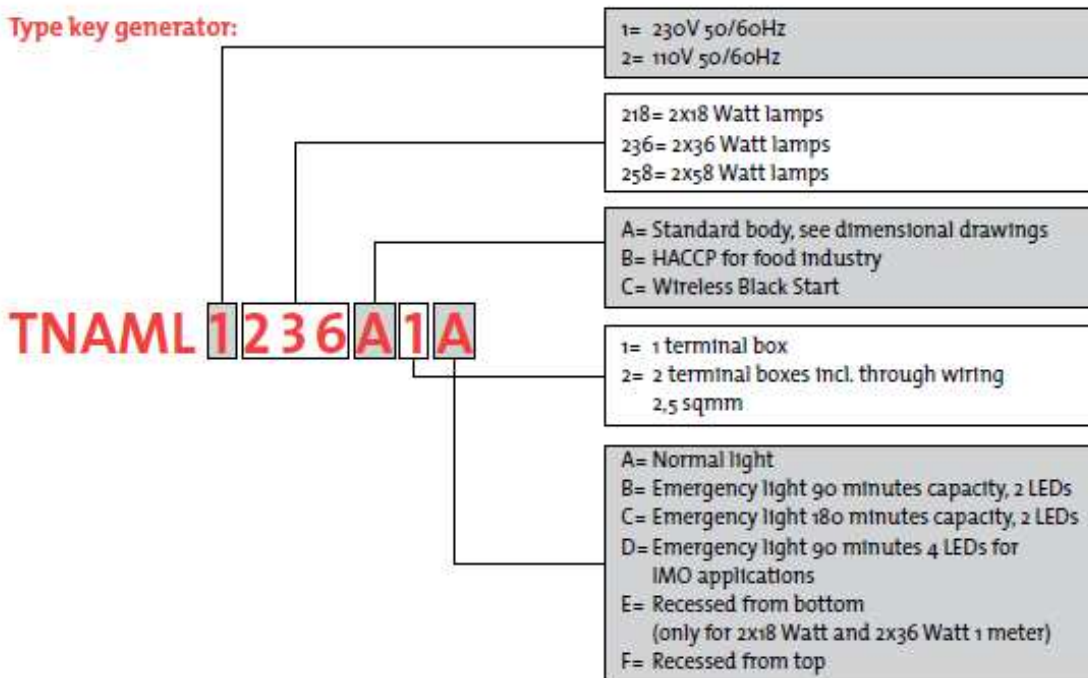
Product specifications:

Housing:	Seawater resistant (NORSOK 121) anodized (25 micron) aluminium with tempered glass
Lamps:	Pre-mounted long life lamps, colour 4000K
IP Rating:	IP68, stated by third party: DEKRA
Impact rating:	IK 20 (20 joules) to IEC 60068-2-75
Temperature range:	-20°C to +55°C for standard version
Voltage:	220-264VAC 50/60Hz
Electrical connection:	0,5-6mm ² by spring terminals through integrated external junction box (sealed by resin after installation and test)
Entries:	2 x M25 cable gland entries. One plugged off.
Ballast:	Electronic with end of life protection, Pre-heated start
Mounting:	2 x brackets on guidance rail for flexible, easy and quick installation
Emergency batteries:	Disconnecting possibility during installation by "B" terminal
Battery life time:	300 cycles, automatic random test each 100 days

Upon request:

Voltage:	110/120VAC, 50/60 Hz (only for 2x18W and 2x36W)
Lamps:	Colour 3000K or 6500K
Electrical connection:	By 8 meter permanent flying lead, braided
LED Emergency Lighting:	180 minute back-up for 2x18W, 2x36W and 2x58W 4 LED's to meet IMO specifications
Mounting brackets:	Pole and ceiling mounting brackets
Glass:	For use in accordance with HACCP environment (food industry)
Frosted glass:	Avoiding glare for low mounted luminaires
HACCP:	For food industry
Safety wire:	For installation onto a fixing arrangement on the light fitting
Cable Gland Ex e:	Suitable rated cable glands can be supplied with the luminaire (separate package)
Black start Emergency light:	Wireless "Black start" function for manned/unmanned functionality
Recessed ceiling installation:	Frame for recessed installation in modular ceiling systems, painted steel or stainless steel
Wiring:	Through wiring by 2 junction boxes
Other area classifications:	Zone II, Ex nA, 3 GD (TNAML-nA...) or safe area industrial version (TNAML-L...)

Type key generator:



Most common types:

Article code	Wattage	Voltage	Weight	Lumen
TNAML 1218A1A	2 x 18W	220-264VAC	7,1 kgs	2,600
TNAML 1236A1A	2 x 36W	220-264VAC	9,7 kgs	6,000
TNAML 1258A1A	2 x 58W	220-264VAC	12,4 kgs	10,400
TNAML 1236A1B	2 x 36W	220-264VAC	11,3 kgs	6,000
TNAML 1218A1B	2 x 18W	220-264VAC	9,4 kgs	2,600
TNAML 1236A1B	2 x 58W	220-264VAC	14,2 kgs	10,400

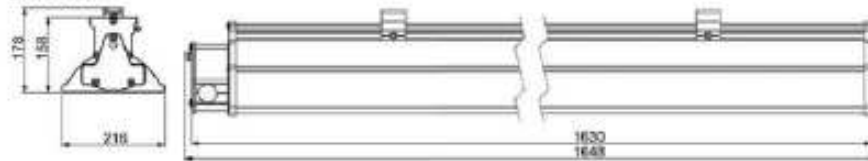
Type	Max. qty. of luminaires on a 16A/C-char. circuit. 30mA ELCB	Inrush current
2 x 18W	30	18A / 250µs
2 x 36W	30	18A / 250µs
2 x 58W	20	31A / 350µs

Total Cost of Ownership

The benefits of installing TNAML® can be shown in a Total Cost of Ownership calculation. For this purpose we have created a software tool to calculate the lifetime cost savings based on input from the client.

Dimensions

2 x 58W



2 x 36W



2 x 18W



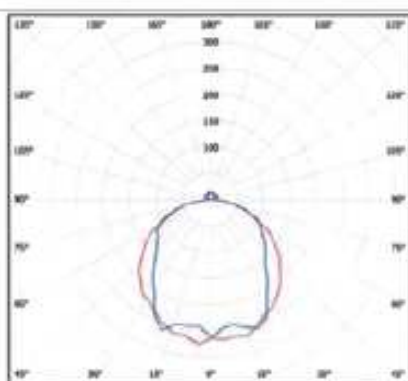
* Emergency light version



Optional: Junction box in each end for through connection/wiring



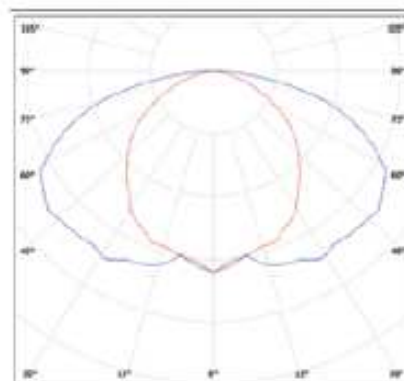
Standard luminaire



1000lx
 — Ø 100 — Ø 120 — Ø 150 — Ø 200
 Efficiency η = 90%

Fig. 1000 Lumen



Emergency luminaire



1000lx
 — Ø 100 — Ø 120 — Ø 150 — Ø 200
 Efficiency η = 90%

PREVENTIVO FORNITURA CORPI ILLUMINANTI

NOTE	DESCRIZIONE	Q.tà	€ cad.	€ Totale	potenza W cad
	<p align="center">Illuminazione perimetrale TIPI: PL1-8, PL1-9, PL2-8, PL2-9, PL1-8E</p> <p>Armatura per esterno per attacco a palo orientabile tipo MAG 165 Techned Benelux con lampada ad induzione da 165W tipo QL 165 LUCE BIANCA 4000° / 5000° , 11000 lumen, "permanentemente sigillata- sealed for life " garantita maintenance free per 80.000 ore e con garanzia di 10 Anni. Riaccensione a caldo immediata</p>	69	€ 1.405,56	€ 96.983,64	165
	<p align="center">Pali H 8 metri</p> <p>Pali conici a sezione circolare ricavati da lamiera d'acciaio pressopiegata e saldata longitudinalmente (saldatura a vista), zincati a caldo, completi di foro ingresso cavi, attacco di messa a terra e asola per la morsettiera, comprensivo di portella con morsettiera, altezza 8mt fuoriterra</p>	48	€ 325,00	€ 15.600,00	
	<p align="center">TIPI: PPL2-9</p> <p>APPARECCHIO ILLUMINANTE TECHNED 300/ P con 4 Unità LEDs con ottica da definire un base alla posizione sull'impianto COMPLETO DI ALIMENTATORI 240V 60Hz (riaccensione immediata) e di kit testapalo per innesto diametro 60mm</p>	16	€ 2.222,22	€ 35.555,52	300
	<p align="center">Pali H 8 metri</p> <p>Pali conici a sezione circolare ricavati da lamiera d'acciaio pressopiegata e saldata longitudinalmente (saldatura a vista), zincati a caldo, completi di foro ingresso cavi, attacco di messa a terra e asola per la morsettiera, comprensivo di portella con morsettiera, altezza 8mt fuoriterra</p>	8	€ 325,00	€ 2.600,00	
	<p align="center">APPARECCHI PER AREE CLASSIFICATE</p>				
 	<p align="center">TIPI: PPEXL2-9, D</p> <p>Proiettore EWL per aree classificate 1-21 (2-22 ridondante) con fonte luminosa led, riaccensione a caldo, 12000 Lumen, 240V 60HZ ,completo di presscavo per cavo non armato PNA-2-A.. M25, tappo in aisi316 con occhio per attacco fune di guardia</p>	21	€ 3.416,67	€ 71.750,07	140
	<p align="center">Pali H 8 metri</p> <p>Pali conici a sezione circolare ricavati da lamiera d'acciaio pressopiegata e saldata longitudinalmente (saldatura a vista), zincati a caldo, completi di foro ingresso cavi, attacco di messa a terra e asola per la morsettiera, comprensivo di portella con morsettiera, altezza 8mt fuoriterra</p>	3	€ 325,00	€ 975,00	

Illuminazione perimetrale piano sonda					
	Soluzione 1 TIPI: A, B, C, E, F				
	Armatura per esterno in area classificata Zona 1/21 / ridondante 2 /22) in esecuzione Ex e mb, Ex tD A21 Gruppo II Categoria 2 G D secondo Atex 94-9-CE e successivi aggiornamenti, tipo TNAML- 1236A1A. a tubi fluorescenti long life 2 x 36W , 220-264 VAC 50/ 60HZ. (riaccensione a caldo). "permanentemente sigillata- sealed for life " garantita maintenance free per 80.000 ore e con garanzia di 10 Anni	107	€ 610,00	€ 65.270,00	72
	opzioni per Vibro stop (sistema per smorzare le vibrazioni)	107	€ 64,44	€ 6.895,08	
	Pressacavo a semplice tenuta per non armato tipo PNA-2 A.. in ottone Nichel - Cromato, Ex-e II Atex 2GD, IP-66, grandezza 2 = M25	107	€ 15,56	€ 1.664,92	
	Kit in acciaio zincato a caldo per montaggio a parete / controsoffitto per armature TNAML	107	€ 22,33	€ 2.389,31	
	Soluzione 2 - con teleregolazione del livello d'illuminamento				
	Armatura per esterno in area classificata Zona 1 /21 (ridondante per Zona 2/22) in esecuzione Ex e mb, Ex tD A21 Gruppo II Categoria 2 G D secondo Atex 94-9-CE e successivi aggiornamenti, tipo TNAML-W- 1236A1A versione Wireless a tubi fluorescenti long life 2 x 36W per luce di lavoro e luce di passaggio e 2 LEDs 1,2 W per luce di fondo , 220-264 VAC 50/ 60HZ. (riaccensione a caldo). "permanentemente sigillata- sealed for life " garantita maintenance free per 80.000 ore e con garanzia di 10 Anni	107	€ 933,00	€ 99.831,00	72
	opzioni per Vibro stop (sistema per smorzare le vibrazioni)	107	€ 64,44	€ 6.895,08	
	Pressacavo a semplice tenuta per non armato tipo PNA-2 A.. in ottone Nichel - Cromato, Ex-e II Atex 2GD, IP-66, grandezza 2 = M25	107	€ 15,56	€ 1.664,92	
	Kit in acciaio zincato a caldo per montaggio a parete / controsoffitto per armature TNAML	107	€ 22,33	€ 2.389,31	
TOTALE SOLUZIONE 1 (IVA ESCLUSA)			€ 299.683,54		
TOTALE SOLUZIONE 2 (IVA ESCLUSA)			€ 334.244,54		

N.B. Direttiva RAEE Rifiuti apparecchiature elettriche ed elettroniche

Decreto Legislativo nr. 151 Direttiva Europea 2002/95/CE e 2002/96/CE relativa alla riduzione delle sostanze pericolose nelle apparecchiature elettriche ed elettroniche e dello smaltimento dei rifiuti da essi derivanti.

Tale contributo verrà applicato direttamente in fattura o all'emissione dello scontrino fiscale

CONDIZIONI DI VENDITA :

PREZZI: Di listino

I.V.A. Esclusa

LAMPADINE: Compresse

MONTAGGIO: Escluso

TRASPORTO: Escluso