

Costo Referencial de Posesión y Operación de Equipo Mecánico del MTC

* Julio 2008 *

Maquinaria

N°	Unidad base para el Cálculo	Potencia (HP)	Capacidad	Peso (Kg.)	Costo de Posesión			Costo de Operación							Costo Horario de Posesión y Operación (a+b)
					Depreciación	Seguro 0.46%	Total (a)	Mant. y Rep.	Consumo de Combustible	Lubr. + Grasas	Filtros	Llantas	Operador	Total (b)	
Equipos para Perforación															
1	Compresoras Neumáticas	76	125-175 PCM	2,000	3.8	0.0	3.8	3.0	22.5	2.9	1.2	0.0	8.3	37.8	41.6
2		87	250-330 PCM	2,000	8.9	0.0	8.9	7.0	28.8	2.9	1.2	0.0	8.3	48.2	57.1
3		93	335-375 PCM	2,500	12.2	0.2	12.4	9.5	45.0	3.3	1.3	0.0	8.3	67.4	79.9
4		150	380-590 PCM	3,500	16.5	0.3	16.9	12.9	47.5	4.0	1.6	0.0	8.3	74.4	91.2
5		196	600-690 PCM	5,000	12.7	0.3	13.0	10.0	91.3	6.1	2.4	0.0	8.3	118.1	131.1
6		240	700-800 PCM	6,500	14.1	0.3	14.4	11.0	108.8	7.5	3.0	0.0	8.3	138.7	153.0
7	Martillos Neumáticos		24 Kg	24	3.0	0.0	3.1	2.4	0.0	0.0	0.0	0.0	0.0	2.4	5.4
8			29 Kg	29	3.9	0.0	4.0	3.1	0.0	0.0	0.0	0.0	0.0	3.1	7.0
9	Motoperforadora	1400 RPM	185 CC	26	4.8	0.1	4.8	1.6	0.0	0.0	0.0	0.0	0.0	1.6	6.4
10	Perforadora sobre Orugas		660-690 PCM	6,000	19.5	0.4	20.0	15.6	0.0	0.0	0.0	0.0	0.0	15.6	35.6
Equipos para Movimiento de Tierra															
11	Cargador sobre Oruga	50-79	0.7-1.3 Yd ³	10,000	19.3	0.4	19.8	12.9	41.3	3.6	1.4	0.0	8.3	67.5	87.2
12		80-105	1.5-1.75 Yd ³	12,967	22.9	0.5	23.4	15.3	45.0	4.7	1.9	0.0	8.3	75.1	98.5
13		110-135	2.0-2.25 Yd ³	16,275	39.5	0.9	40.3	26.3	45.0	5.4	2.2	0.0	8.3	87.1	127.5
14		150-180	2.5-2.75 Yd ³	18,387	48.0	1.0	49.0	32.0	70.0	5.8	2.3	0.0	8.3	118.3	167.3
15		190-225	3.2-3.75 Yd ³	25,173	84.9	1.8	86.7	34.0	77.5	7.5	3.0	0.0	8.3	130.3	217.1
16		245	4.0-6.0 Yd ³	28,000	88.3	1.9	90.2	35.3	87.5	7.9	3.2	0.0	8.3	142.2	232.4
17	Cargador Retroexcavador	62	1 Yd ³	8,000	21.1	0.4	21.5	11.8	38.8	3.7	1.5	0.1	8.3	64.2	85.7
18	Cargador sobre Llantas	80-95	1.5-1.75 Yd ³	9,031	28.5	0.5	29.0	18.9	25.0	3.3	1.3	1.2	8.3	57.9	86.9
19		100-115	2.0-2.35 Yd ³	10,308	25.8	0.5	26.3	17.1	35.0	4.3	1.7	1.2	8.3	67.6	94.0
20		100-125	2.50 Yd ³	11,500	38.2	0.7	38.9	25.4	35.0	5.0	2.0	0.9	8.3	76.6	115.5
21		125-155	3.0 Yd ³	16,584	38.2	0.7	38.9	25.4	56.3	5.0	2.0	1.0	8.3	97.9	136.9
22		160-195	3.5 Yd ³	18,585	49.7	0.9	50.6	33.0	60.0	5.4	2.2	1.7	8.3	110.6	161.2
23		200-250	4.0 - 4.1 Yd ³	20,826	55.5	1.2	56.7	36.9	62.5	6.1	2.4	2.3	8.3	118.5	175.2
24	Mototrallas Autocargable	200-250	4.6 Yd ³	22,000	57.7	1.3	58.9	38.3	66.3	7.9	3.2	2.3	8.3	126.2	185.1
25		260-300	5.0-5.50 Yd ³	31,105	79.9	1.7	81.6	53.1	68.8	9.0	3.6	2.3	8.3	145.0	226.6
26		375	8.0 Yd ³	49,738	115.3	2.5	117.8	76.7	87.5	11.1	4.4	3.1	8.3	191.1	309.0
27		140-200	11.0 Yd ³	14,200	59.5	1.1	60.7	19.7	66.3	6.2	2.5	2.4	8.3	105.4	166.0
28		210-300	16.0 Yd ³	20,600	90.1	1.7	91.7	29.9	93.8	9.0	3.6	3.0	8.3	147.5	239.2
29		310-350	23.0 Yd ³	32,800	87.4	1.9	89.3	29.0	120.0	10.8	4.3	2.2	8.3	174.5	263.8
30	Retroexcavadora sobre Llantas	310-400	14-20 Yd ³	20,000	84.9	1.8	86.7	28.2	125.0	11.8	4.7	2.3	8.3	180.4	267.1
31		405-480	21-31 Yd ³	15,500	134.9	2.9	137.8	44.8	165.0	14.3	5.7	3.3	8.3	241.4	379.2
32		58	1 Yd ³	9,000	17.4	0.3	17.7	7.5	25.0	2.5	1.0	0.2	8.3	44.6	62.3
33	Retroexcavadora sobre Oruga	80-110	0.50-1.3 Yd ³	17,300	47.2	0.9	48.1	18.9	41.3	8.7	3.5	0.0	8.3	80.6	128.7
34		115-165	0.75-1.60 Yd ³	23,400	65.7	1.2	66.9	26.3	62.5	8.8	3.5	0.0	8.3	109.4	176.3
35		170-250	1.10-2.75 Yd ³	33,800	108.9	2.0	110.9	43.5	87.5	9.9	4.0	0.0	8.3	153.2	264.1
36		325	2.0-3.8 Yd ³	61,600	182.1	3.4	185.5	72.8	112.5	10.1	4.0	0.0	8.3	207.7	393.2
37	Ripper (Potencia 150 HP)		2,000	3.4	0.1	3.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	1.9	5.3
38	Ripper (Potencia 250 HP)		2,600	5.6	0.1	5.7	3.1	0.0	0.0	0.0	0.0	0.0	0.0	3.1	8.8
39	Ripper (Potencia 300 HP)		4,400	9.8	0.2	10.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	5.4	15.4
40	Ripper (Potencia 470 HP)		6,600	12.7	0.2	13.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	7.1	20.0
41	Tractor sobre Orugas	60-70	6,711	20.2	0.4	20.5	10.7	30.0	2.5	1.0	0.0	8.3	52.6	73.1	
42		75-100	9,090	30.8	0.6	31.4	16.4	31.3	2.7	1.1	0.0	8.3	59.8	91.2	
43		105-135	12,300	43.5	0.8	44.3	23.2	37.5	4.7	1.9	0.0	8.3	75.5	119.9	
44		140-160	14,900	38.0	0.7	38.7	20.3	62.5	5.4	2.2	0.0	8.3	98.6	137.4	
45		190-240	20,520	73.0	1.6	74.5	38.9	68.8	7.2	2.9	0.0	8.3	126.0	200.6	
46		270-295	21,863	70.5	1.8	72.4	37.6	87.5	7.9	3.2	0.0	8.3	144.4	216.8	
47		300-330	31,980	70.2	1.8	72.1	46.8	128.8	8.6	3.5	0.0	8.3	196.0	268.0	
48		335-410	37,170	77.3	2.0	79.3	51.5	137.5	10.4	4.2	0.0	8.3	211.9	291.2	
49		410-470	52,007	106.1	2.8	108.8	56.6	163.8	12.8	5.1	0.0	8.3	246.6	355.4	
50		510	54,760	134.4	3.5	137.9	71.7	163.8	14.6	5.8	0.0	8.3	264.2	402.0	
51		650	70,320	172.8	4.5	177.3	115.2	206.3	31.5	12.6	0.0	8.3	373.8	551.2	
52	Tractor sobre Llantas	200-250	20,500	40.6	0.8	41.3	26.9	102.5	10.6	4.2	2.3	8.3	154.8	196.1	
53		300-350	30,380	53.2	1.0	54.2	35.2	148.8	14.2	5.7	4.5	8.3	216.6	270.8	
54		400-500	46,355	114.2	2.1	116.3	75.8	150.0	17.7	7.1	4.9	8.3	263.8	380.2	
55	Pala Frontal	195	3.0 Yd ³	38,380	141.4	2.6	144.0	113.1	136.3	7.2	2.9	0.0	8.3	267.8	411.8
Equipos de Compactación															
56	Vibrador de Concreto	4	1.25 Pulg.		2.6	0.0	2.7	1.4	0.0	0.0	0.0	0.0	0.0	1.4	4.1
57		4	1.50 Pulg.		2.7	0.0	2.8	1.5	0.0	0.0	0.0	0.0	0.0	1.5	4.2
58		4	2.40 Pulg.		3.3	0.0	3.3	1.8	0.0	0.0	0.0	0.0	0.0	1.8	5.1
59	Compactador Vibrador Tipo Plancha	4	95	1.9	0.0	1.9	0.8	3.4	0.4	0.2	0.0	8.3	13.1	15.0	
60		5.8	145	2.3	0.0	2.3	1.0	3.9	0.8	0.3	0.0	8.3	14.3	16.6	
61		7	160	3.5	0.0	3.5	1.1	4.1	1.1	0.5	0.0	8.3	15.2	18.7	
62		10.8	800	3.7	0.1	3.7	2.9	5.6	1.8	0.7	0.0	8.3	19.4	23.1	
63	Rodillo Liso Vibratorio Manual	70-100	7-9 Ton.	7,300	14.7	0.3	15.0	7.8	26.3	3.3	1.3	0.8	8.3	47.7	62.7
64	Rodillo Liso Vibratorio Autopropulsado	101-135	10-12 Ton.	11,100	15.7	0.3	16.0	8.3	43.8	5.0	2.0	0.8	8.3	68.1	84.1
65		136-170	15-17 Ton.	13,700	19.3	0.4	19.6	10.2	46.3	5.4	2.2	0.8	8.3	73.1	92.7
66		210	19-23 Ton.	19,600	22.1	0.4	22.5	11.7	69.9	7.2	2.9	1.1	8.3	101.1	123.6
67		50-80	4-5.5 Ton.	5,500	5.6	0.1	5.7	3.0	23.8	2.9	1.2	0.0	8.3	39.1	44.8
68	Rodillo Neumático Autopropulsado	60-80	3.0-5.0 Ton.	3,700	11.4	0.3	11.6	4.5	21.3	2.9	1.2	0.2	8.3	38.4	50.0
69		81-100	5.5-20 Ton.	5,500	15.2	0.3	15.5	4.0	25.0	3.3	1.3	0.2	8.3	42.2	57.7
70		127	8.23 Ton.	8,000	11.5	0.3	11.8	6.1	38.8	4.7	1.9	0.2	8.3	59.9	71.7
71		135	9.26 Ton.	9,000	11.8	0.3	12.0	6.3	38.3	4.7	1.9	0.2	8.3	59.6	71.6
72	Pata de Cabra Vibratorio Autopropulsado	84	8.1 Ton.	8,200	8.8	0.2	9.0	6.9	28.3	2.9	1.2	0.7	8.3	48.3	57.3
73		100-135	11-13 Ton.	11,300	15.4	0.3	15.7	8.1	37.9	4.7	1.9	0.7	8.3	61.6	77.3
74		136-180	15-17 Ton.	15,300	16.3	0.4	16.6	10.8	50.6	5.7	2.3	0.7	8.3	78.4	95.1
75		210	20-22 Ton.	21,500											

Costo Referencial de Posesión y Operación de Equipo Mecánico del MTC

* Julio 2008 *

Maquinaria

N°	Unidad base para el Cálculo	Potencia (HP)	Capacidad	Peso (Kg.)	Costo de Posesión			Costo de Operación							Costo Horario de Posesión y Operación (a+b)
					Depreciación	Seguro 0.46%	Total (a)	Mant. y Rep.	Consumo de Combustible	Lubr. + Grasas	Filtros	Llantas	Operador	Total (b)	
97	Chancadora Secundaria 24"S	M.E. 30	46-70 Ton/Hr.	22,000	17.7	0.6	18.2	8.8	0.0	1.5	0.6	0.1	8.3	19.4	37.6
98	Chancadora Secundaria 36"S	M.E. 75	46-70 Ton/Hr.	23,000	30.6	1.0	31.5	15.3	0.0	1.5	0.6	0.1	8.3	25.8	57.3
99	Chancadora Primaria-Secundaria (Incluye 5 fajas)	M.E. 75	46-70 Ton/Hr.	39,000	62.0	2.1	64.0	33.0	112.5	1.6	0.6	0.1	8.3	156.1	220.2
100	Chancadora Primaria - Secundaria (Azteca)		40-80 Ton/Hr.		26.5	1.7	28.2	10.6	0.0	0.0	0.0	0.0	9.3	19.9	48.1
101	Chancadora Primaria - Secundaria (Escorpión)		60-120 Ton/Hr.		33.1	2.1	35.2	13.2	0.0	0.0	0.0	0.0	10.3	23.6	58.8
102	Zaranda Vibratoria 4"x6"x14'	M.E. 15	11 Kw	7,000	9.2	0.3	9.5	6.1	0.0	1.2	0.5	0.1	8.3	16.2	25.7
Equipos para Obras de Concreto															
103		M.E. 40	50 M ³ /Hr.	17,000	25.1	0.9	26.0	20.1	0.0	1.8	0.7	0.0	8.3	30.9	56.9
104	Dosificadora de Concreto	M.E. 45	50-90 M ³ /Hr.	20,000	29.8	1.0	30.8	23.9	0.0	1.8	0.7	0.0	8.3	34.7	65.5
105		M.E. 60	120 M ³ /Hr.	23,000	33.6	1.1	34.7	26.9	0.0	1.8	0.7	0.0	8.3	37.7	72.4
106	Mezcladora de Concreto Tipo Trompo	8	9 Pie ³	500	2.6	0.1	2.7	1.9	0.0	0.0	0.0	0.1	0.0	2.0	4.7
107		18	7 Pie ³	1,500	6.6	0.2	6.7	4.7	0.0	0.0	0.0	0.1	0.0	4.8	11.6
108	Mezcladora de Concreto Tipo Tambor	23	11-12 Pie ³	2,200	10.8	0.2	11.1	7.8	0.0	0.0	0.0	0.1	0.0	7.9	19.0
109		20-35	16 Pie ³	2,700	14.0	0.3	14.3	10.1	0.0	0.0	0.0	0.1	0.0	10.1	24.4
Equipos para Refine y Afirmado															
110		65-80		6,000	15.7	0.4	16.1	10.5	27.5	2.9	1.2	0.2	8.3	50.6	66.7
111		85-120		9,100	21.2	0.6	21.8	14.1	40.0	4.6	1.8	0.2	8.3	69.2	91.0
112	Motoniveladora	125		11,515	22.5	0.6	23.1	15.0	53.8	4.7	1.9	0.2	8.3	83.8	106.9
113		130-135		12,365	30.0	0.8	30.8	20.0	53.8	5.0	2.0	0.2	8.3	89.3	120.1
114		145-150		13,540	29.8	0.8	30.5	19.8	62.5	5.8	2.3	0.2	8.3	99.0	129.6
115		180-200		18,370	49.9	1.3	51.2	33.2	68.8	6.2	2.5	0.6	8.3	119.5	170.7
Equipos para Pavimentación															
116	Amasadora de Asfalto	23.5	5.4 M ³	9,500	25.2	0.5	25.6	20.1	62.5	2.0	0.8	0.1	8.3	93.8	119.4
117	Barredora Mecánica	10-20	7 Pulg. LON	1,000	5.4	0.1	5.5	3.9	12.5	1.3	0.5	0.1	8.3	26.7	32.2
118	Calentador de Aceite 48-S	5	468 P ³	5,700	9.8	0.2	9.9	5.9	0.0	0.0	0.0	0.0	8.3	14.2	24.1
119	Cocina de Asfalto		320 Gln	2,100	8.6	0.1	8.7	3.1	5.0	1.3	0.5	0.1	8.3	18.3	27.1
120	Planta de Asfalto en frío	M.E. 30	30-60 Ton/Hr.	9,000	19.0	0.6	19.7	15.2	0.0	1.5	0.6	0.2	8.3	25.7	45.4
121	Secador de Aridos	M.E. 50	30-64 Ton/Hr.	8,000	12.6	0.4	13.1	10.1	0.0	0.0	0.0	0.0	8.3	18.4	31.5
122	Planta de Asfalto en frío	M.E. 50	60-115 Ton/Hr.	9,000	27.2	0.9	28.1	21.7	0.0	1.5	0.6	0.2	8.3	32.2	60.4
123	Planta de Asfalto en Caliente (CYBER)		60 Ton/Hr.	32,350	64.4	2.0	66.4	0.0	1,237.5	5.2	2.1	0.0	8.3	1,253.1	1,319.6
124	Planta de Asfalto en Caliente (CIFALLI)		90-120 Ton/Hr.	46,800	62.3	2.0	64.3	0.0	1,987.5	5.2	2.1	0.0	8.3	2,003.1	2,067.4
125	Secador de Aridos	M.E. 70	60-115 Ton/Hr.	8,500	16.5	0.6	17.1	8.8	0.0	6.0	2.4	0.0	8.3	25.5	42.6
126	Pavimentadora sobre oruga	69	10 Pulg.	12,000	30.1	1.0	31.1	20.1	23.3	3.8	1.5	0.0	8.3	57.0	88.1

16,911.4

Vehículos y Camiones

N°	Unidad base para el Cálculo	Potencia (HP)	Capacidad	Peso (Kg.)	Costo de Posesión			Costo de Operación							Costo Horario de Posesión y Operación (a+b)
					Depreciación	Seguro 2.19%	Total (a)	Mant. y Rep.	Consumo de Combustible	Lubr. + Grasas	Filtros	Llantas	Operador	Total (b)	
1	Camioneta Pick-Up 4X2 - C. Simple	90	1,000 Kg	2,100	4.6	0.3	5.0	3.7	21.6	4.3	1.7	0.2	7.8	39.3	44.3
2		90	2,000 Kg	3,000	6.0	0.4	6.4	4.8	23.0	4.6	1.8	0.3	7.8	42.3	50.7
3	Camioneta Pick-Up 4X4 - C. Simple	107	1,000 Kg	2,450	5.2	0.4	5.5	4.1	27.0	4.3	1.7	0.2	7.8	45.1	48.6
4	Camioneta Pick-Up 4X2 - C. Doble	90	750 Kg	1,850	5.6	0.4	6.0	4.5	21.6	4.3	1.7	0.3	7.8	40.1	46.1
5		118	5 Pas.	1,850	5.3	0.4	5.7	4.3	24.3	4.3	1.7	0.3	7.8	42.6	48.3
6	Camioneta Rural 4X4	135	5 Pas.	1,882	7.1	0.5	7.6	5.6	35.8	4.3	1.7	0.3	7.8	55.5	63.1
7	Camioneta Station Wagon 4x2	100	6 Pas.	1,800	4.5	0.3	4.8	3.6	27.0	4.3	1.7	0.3	7.8	44.6	49.5
8		122	1,500 Gln	9,900	15.1	1.5	16.6	11.3	48.8	4.7	1.9	0.4	7.8	74.8	91.3
9	Cisterna de Agua 4X2	145-165	2,000 Gln	13,000	17.4	1.7	19.0	13.0	50.0	4.7	1.9	0.4	7.8	77.7	96.7
10		178-210	3,000 Gln	19,000	21.4	2.1	23.4	13.3	70.0	7.2	2.9	0.6	7.8	101.8	125.2
11	Cisterna de Combustible 4X2	122	2,000 Gln	13,000	18.2	1.8	20.0	11.4	41.3	4.7	1.9	0.4	7.8	67.3	87.2
12	Cisterna de Asfalto 4X2	178-210	2,000 Gln	13,000	20.9	2.0	22.9	13.0	69.9	7.2	2.9	0.5	7.8	101.3	124.3
13	Concretero 4X2	178-210	4 M ³	19,000	41.8	4.0	45.8	26.1	69.9	8.9	3.6	0.5	7.8	116.8	162.6
14	Concretero 6X4	300	6 M ³	26,000	48.2	4.6	52.8	30.1	100.0	10.7	4.3	0.5	7.8	153.4	206.2
15	Dumper 6X4	146-240	12 M ³	32,200	43.4	4.2	47.5	27.0	48.3	5.0	2.0	1.0	7.8	91.0	138.6
16	Dumper 6x6	146-240	13 M ³	38,400	51.9	5.0	56.9	32.3	69.9	7.2	2.9	1.5	7.8	121.6	178.5
17	Camión Imprimador 6X2	178-210	1,800 Gln	16,475	21.1	2.0	23.1	13.1	69.9	10.6	4.2	0.2	7.8	105.9	129.0
18	Plataforma 4X2	122	8 Ton.	13,000	22.8	2.2	25.0	14.3	32.5	10.5	4.2	0.4	7.8	69.6	94.6
19	Plataforma 6X4	178-210	12 Ton.	19,000	28.9	2.8	31.7	18.0	35.0	10.5	4.2	0.4	7.8	75.9	107.5
20	Plataforma 6X4	300	19 Ton.	26,000	57.9	5.6	63.4	36.1	81.3	17.6	7.0	0.5	7.8	150.3	213.7
21	Semitrayler 6X4	330	35 Ton.	42,600	42.5	4.1	46.6	31.9	97.4	17.8	7.1	0.4	7.8	162.3	208.9
22		330	40 Ton.	54,420	43.4	4.2	47.5	32.5	97.4	17.8	7.1	0.5	7.8	163.1	210.6
23		120-140	4 M ³	11,500	12.1	1.2	13.3	12.1	60.0	7.2	2.9	0.4	7.8	90.3	103.6
24	Volquete 4X2	140-210	6 M ³	15,000	16.3	1.6	17.9	16.3	69.9	10.7	4.3	0.5	7.8	109.4	127.3
25		210-280	8 M ³	19,000	22.5	2.2	24.7	22.4	93.3	14.2	5.7	1.0	7.8	144.3	169.0
26	Volquete 6X4	330	10 M ³	26,000	23.0	2.2	25.2	22.9	109.9	17.8	7.1	1.0	7.8	166.5	191.7

3117.1

Equipos Diversos

N°	Unidad base para el Cálculo	Potencia (HP)	Capacidad	Peso (Kg.)	Costo de Posesión			Costo de Operación							Costo Horario de Posesión y Operación (a+b)
					Depreciación	Seguro 0.46%	Total (a)	Mant. y Rep.	Consumo de Combustible	Lubr. + Grasas	Filtros	Llantas	Operador	Total (b)	
1	Faja Transportadora 18"X40'	M.E. 3	150 Ton/Hr.	4,000	5.3	0.5	5.8	3.6	0.0	0.2	0.1	0.0	0.0	3.8	9.6
2	Faja Transportadora 18"X50'	M.E. 3	150 Ton/Hr.	4,000	5.7	0.5	6.2	3.8	0.0	0.2	0.1	0.0	0.0	4.1	10.3
3	Faja Transportadora 30"X40'	M.E. 5	550 Ton/Hr.	7,800	6.0	0.5	6.6	4.0	0.0	0.2	0.1	0.0	0.0	4.3	10.8
4	Faja Transportadora 30"X50'	M.E. 5	800 Ton/Hr.	12,000	6.8	0.6	7.4	4.5	0.0	0.2	0.1	0.0	0.0	4.8	12.2
5	Faja Transportadora 30"X60'	M.E. 7	800 Ton/Hr.	15,000	9.1	0.8	9.9	6.0	0.0	0.2	0.1	0.0	0.0	6.3	16.2
6		38	20 Kw	500	3.3	0.3	3.7	3.1	0.0	0.0	0.0	0.0	0.0	3.1	6.7
7		56	37.5 Kw	720	3.8	0.4	4.2	3.5	0.0	0.0	0.0	0.0	0.0	3.5	7.7
8		89	50 Kw	1,150	4.5	0.5	5.0	4.2	0.0	0.0	0.0	0.0	0.0	4.2	9.2
9		116	75 Kw	1,500	5.4	0.6	5.9	5.0	0.0	0.0	0.0	0.0	0.0	5.0	11.0
10	Grupo Electrónico	140	90 Kw	1,700	6.8	0.7	7.5	6.4	0.0	0.0	0.0	0.0	0.0	6.4	13.9
11		230	150 Kw	2,000	16.1	1.7	17.8	15.0	0.0	0.0	0.0	0.0	0.0	15.0	32.8
12		380	250 Kw	2,70											