

Costo Referencial de Posesión y Operación de Equipo Mecánico del MTC

* Febrero 2009 *

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		76	125-175 PCM	2,000	4.3	0.0	4.3	3.4	22.5	2.9	1.2	0.0	8.3	38.2	42.5
2		87	250-330 PCM	2,000	10.2	0.0	10.2	7.9	28.8	2.9	1.2	0.0	8.3	49.1	59.3
3	Compresoras Neumáticas	93	335-375 PCM	2,500	13.9	0.3	14.1	10.8	45.0	3.3	1.3	0.0	8.3	68.8	82.9
4		150	380-590 PCM	3,500	18.8	0.4	19.2	14.7	47.5	4.0	1.6	0.0	8.3	76.1	95.3
5		196	600-690 PCM	5,000	14.5	0.3	14.8	11.3	91.3	6.1	2.4	0.0	8.3	119.5	134.2
6		240	700-800 PCM	6,500	16.0	0.3	16.3	12.5	108.8	7.5	3.0	0.0	8.3	140.2	156.5
7	Martillos Neumáticos		24 Kg	24	3.4	0.0	3.5	2.7	0.0	0.0	0.0	0.0	0.0	2.7	6.2
8			29 Kg	29	4.5	0.1	4.5	3.5	0.0	0.0	0.0	0.0	0.0	3.5	8.0
9	Motoperforadora	1400 RPM	185 CC	26	5.4	0.1	5.5	1.8	0.0	0.0	0.0	0.0	0.0	1.8	7.2
10	Perforadora sobre Orugas		660-690 PCM	6,000	22.2	0.5	22.7	17.8	0.0	0.0	0.0	0.0	0.0	17.8	40.4
Equipos para Movimiento de Tierra															
11	Cargador sobre Oruga	50-79	0.7-1.3 Yd ³	10,000	22.0	0.5	22.4	14.6	41.3	3.6	1.4	0.0	8.3	69.2	91.7
12		80-105	1.5-1.75 Yd ³	12,967	26.0	0.6	26.6	17.3	45.0	4.7	1.9	0.0	8.3	77.2	103.7
13		110-135	2.0-2.25 Yd ³	16,275	44.8	1.0	45.8	29.9	45.0	5.4	2.2	0.0	8.3	90.7	136.5
14		150-180	2.5-2.75 Yd ³	18,387	54.5	1.2	55.7	36.3	70.0	5.8	2.3	0.0	8.3	122.7	178.4
15		190-225	3.2-3.75 Yd ³	25,173	96.5	2.1	98.6	38.6	77.5	7.5	3.0	0.0	8.3	135.0	233.5
16	Cargador Retroexcavador	245	4.0-6.0 Yd ³	28,000	100.4	2.2	102.5	40.1	87.5	7.9	3.2	0.0	8.3	147.0	249.5
17		62	1 Yd ³	8,000	23.9	0.4	24.4	13.4	38.8	3.7	1.5	0.1	8.3	65.8	90.2
18	Cargador sobre Llantas	80-95	1.5-1.75 Yd ³	9,031	32.4	0.6	33.0	21.5	25.0	3.3	1.3	1.2	8.3	60.5	93.5
19		100-115	2.0-2.35 Yd ³	10,308	29.4	0.6	29.9	19.5	35.0	4.3	1.7	1.2	8.3	70.0	99.9
20		100-125	2.50 Yd ³	11,500	43.5	0.8	44.3	28.9	35.0	5.0	2.0	0.9	8.3	80.1	124.3
21		125-155	3.0 Yd ³	16,584	43.4	0.8	44.2	28.9	56.3	5.0	2.0	1.0	8.3	101.4	145.6
22		160-195	3.5 Yd ³	18,585	56.5	1.1	57.6	37.6	60.0	5.4	2.2	1.7	8.3	115.2	172.7
23	Mototrailas Autocargable	200-250	4.0 - 4.1 Yd ³	20,826	63.2	1.4	64.5	42.0	62.5	6.1	2.4	2.3	8.3	123.6	188.1
24		200-250	4.6 Yd ³	22,000	65.6	1.4	67.0	43.6	66.3	7.9	3.2	2.3	8.3	131.4	198.4
25		260-300	5.0-5.50 Yd ³	31,105	90.8	2.0	92.8	60.4	68.8	9.0	3.6	2.3	8.3	152.3	245.1
26		375	8.0 Yd ³	49,738	131.1	2.8	134.0	87.2	87.5	11.1	4.4	3.1	8.3	201.6	335.6
27		140-200	11.0 Yd ³	14,200	67.8	1.3	69.0	22.5	66.3	6.2	2.5	2.4	8.3	108.1	177.1
28	Retroexcavadora sobre Llantas	210-300	16.0 Yd ³	20,600	102.5	1.9	104.4	34.0	93.8	9.0	3.6	3.0	8.3	151.6	256.0
29		310-350	23.0 Yd ³	32,800	99.3	2.1	101.5	33.0	120.0	10.8	4.3	2.2	8.3	178.5	280.0
30		310-400	14-20 Yd ³	20,000	96.5	2.1	98.6	32.1	125.0	11.8	4.7	2.3	8.3	184.2	282.8
31		405-480	21-31 Yd ³	15,500	153.4	3.3	156.7	51.0	165.0	14.3	5.7	3.3	8.3	247.6	404.3
32	Retroexcavadora sobre Oruga	58	1 Yd ³	9,000	19.8	0.4	20.1	8.6	25.0	2.5	1.0	0.2	8.3	45.7	65.8
33	Ripper (Potencia 150 HP)	80-110	0.50-1.3 Yd ³	17,300	53.6	1.0	54.6	21.5	41.3	8.7	3.5	0.0	8.3	83.2	137.8
34		115-165	0.75-1.60 Yd ³	23,400	74.6	1.4	76.0	29.8	62.5	8.8	3.5	0.0	8.3	113.0	188.9
35		170-250	1.10-2.75 Yd ³	33,800	123.7	2.3	126.0	49.5	87.5	9.9	4.0	0.0	8.3	159.2	285.1
36		325	2.0-3.8 Yd ³	61,600	206.9	3.8	210.7	82.8	112.5	10.1	4.0	0.0	8.3	217.7	428.4
37	Ripper (Potencia 250 HP)			2,000	3.8	0.1	3.9	2.1	0.0	0.0	0.0	0.0	0.0	2.1	6.0
38	Ripper (Potencia 300 HP)			2,600	6.4	0.1	6.5	3.5	0.0	0.0	0.0	0.0	0.0	3.5	10.0
39	Ripper (Potencia 470 HP)			4,400	11.1	0.2	11.3	6.2	0.0	0.0	0.0	0.0	0.0	6.2	17.5
40				6,600	14.5	0.3	14.7	8.0	0.0	0.0	0.0	0.0	0.0	8.0	22.8
41	Tractor sobre Orugas	60-70		6,711	22.9	0.4	23.3	12.2	30.0	2.5	1.0	0.0	8.3	54.1	77.4
42		75-100		9,090	35.0	0.6	35.7	18.7	31.3	2.7	1.1	0.0	8.3	62.0	97.7
43		105-135		12,300	49.5	0.9	50.4	26.4	37.5	4.7	1.9	0.0	8.3	78.7	129.1
44		140-160		14,900	43.2	0.8	44.0	23.1	62.5	5.4	2.2	0.0	8.3	101.4	145.4
45		190-240		20,520	82.9	1.8	84.7	44.2	68.8	7.2	2.9	0.0	8.3	131.3	216.0
46		270-295		21,863	80.1	2.1	82.2	42.7	87.5	7.9	3.2	0.0	8.3	149.6	231.8
47		300-330		31,980	79.8	2.1	81.9	53.2	128.8	8.6	3.5	0.0	8.3	202.3	284.2
48		335-410		37,170	87.8	2.3	90.1	58.5	137.5	10.4	4.2	0.0	8.3	218.9	309.0
49		410-470		52,007	120.5	3.1	123.6	64.3	163.8	12.8	5.1	0.0	8.3	254.3	377.9
50		510		54,760	152.7	4.0	156.6	81.4	163.8	14.6	5.8	0.0	8.3	273.9	430.6
51		650		70,320	196.4	5.1	201.5	130.9	206.3	31.5	12.6	0.0	8.3	389.5	591.0
52	Tractor sobre Llantas	200-250		20,500	46.1	0.9	47.0	30.6	102.5	10.6	4.2	2.3	8.3	158.5	205.5
53		300-350		30,380	60.6	1.1	61.7	40.1	148.8	14.2	5.7	4.5	8.3	221.5	283.2
54		400-500		46,355	129.9	2.4	132.3	86.3	150.0	17.7	7.1	4.9	8.3	274.3	406.6
55	Pala Frontal	195	3.0 Yd ³	38,380	160.7	3.0	163.6	128.5	136.3	7.2	2.9	0.0	8.3	283.2	446.8
Equipos de Compactación															
56	Vibrador de Concreto	4	1.25 Pulg.		3.0	0.0	3.0	1.6	0.0	0.0	0.0	0.0	0.0	1.6	4.7
57		4	1.50 Pulg.		3.1	0.0	3.1	1.7	0.0	0.0	0.0	0.0	0.0	1.7	4.8
58		4	2.40 Pulg.		3.7	0.1	3.8	2.0	0.0	0.0	0.0	0.0	0.0	2.0	5.8
59	Compactador Vibrador Tipo Plancha	4		95	2.1	0.0	2.2	0.9	3.4	0.4	0.2	0.0	8.3	13.2	15.3
60		5.8		145	2.6	0.0	2.7	1.1	3.9	0.8	0.3	0.0	8.3	14.4	17.1
61		7		160	4.0	0.0	4.0	1.3	4.1	1.1	0.5	0.0	8.3	15.3	19.3
62		10.8	0.8 - 1.1 Ton.	800	4.2	0.1	4.2	3.3	5.6	1.8	0.7	0.0	8.3	19.8	24.0
63	Rodillo Liso Vibratorio Autopropulsado	70-100	7-9 Ton.	7,300	16.8	0.3	17.1	8.9	26.3	3.3	1.3	0.8	8.3	48.8	65.8
64		101-135	10-12 Ton.	11,100	17.9	0.3	18.3	9.5	43.8	5.0	2.0	0.8	8.3	69.2	87.5
65		136-170	15-17 Ton.	13,700	21.9	0.4	22.4	11.6	46.3	5.4	2.2	0.8	8.3	74.5	96.8
66	210	19-23 Ton.	19,600	25.2	0.5	25.7	13.3	69.9	7.2	2.9	1.1	8.3	102.7	128.3	
67	Rodillo Liso Vibratorio de Tiro	50-80	4-5.5 Ton.	5,500	6.3	0.1	6.4	3.4	23.8	2.9	1.2	0.0	8.3	39.5	45.9
68	Rodillo Neumático Autopropulsado	60-80	3.0-5.0 Ton.	3,700	12.9	0.3	13.2	5.2	21.3	2.9	1.2	0.2	8.3	39.0	52.2
69		81-100	5.5-20 Ton.	5,500	17.3	0.4	17.7	4.6	25.0	3.3	1.3	0.2	8.3	42.7	60.4
70		127	8.23 Ton.	8,000	13.1	0.3	13.4	7.0	38.8	4.7	1.9	0.2	8.3	60.8	74.2
71		135	9.26 Ton.	9,000	13.4	0.3	13.7	7.1	38.3	4.7	1.9	0.2	8.3	60.4	74.1
72	Pata de Cabra Vibratorio Autopropulsado	84	8.1 Ton.	8,200	10.0	0.2	10.2	7.9	28.3	2.9	1.2	0.7	8.3	49.3	59.5
73		100-135	11-13 Ton.	11,300	17.5	0.4	17.9	9.3	37.9	4.7	1.9	0.7	8.3	62.7	80.6
74		136-180	15-17 Ton.	15,300	18.5	0.4	18.9	12.3	50.6</						

Costo Referencial de Posesión y Operación de Equipo Mecánico del MTC

* Febrero 2009 *

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 Kw	46-70 Ton/Hr.	22,000	20.1	0.6	20.7	10.0	0.0	1.5	0.6	0.1	8.3	20.6	41.3
98	Chancadora Secundaria 36"S	M.E. 75 Kw	46-70 Ton/Hr.	23,000	34.7	1.1	35.8	17.4	0.0	1.5	0.6	0.1	8.3	27.9	63.7
99	Chancadora Primaria-Secundaria (Incluye 5 faja)	M.E. 75 Kw	46-70 Ton/Hr.	39,000	70.4	2.4	72.8	37.5	112.5	1.6	0.6	0.1	8.3	160.6	233.4
100	Chancadora Primaria - Secundaria (Azteca)		40-80 Ton/Hr.		30.1	1.9	32.0	12.0	0.0	0.0	0.0	0.0	9.3	21.3	53.4
101	Chancadora Primaria - Secundaria (Escorpión)		60-120 Ton/Hr.		37.6	2.4	40.0	15.0	0.0	0.0	0.0	0.0	10.3	25.4	65.4
102	Zaranda Vibratoria 4"x6"x14'	M.E. 15 Kw	11 Kw	7,000	10.4	0.4	10.8	6.9	0.0	1.2	0.5	0.1	8.3	17.1	27.8
Equipos para Obras de Concreto															
103		M.E. 40 Kw	50 M ³ /Hr.	17,000	28.5	1.0	29.5	22.8	0.0	1.8	0.7	0.0	8.3	33.7	63.2
104	Dosificadora de Concreto	M.E. 45 Kw	50-90 M ³ /Hr.	20,000	33.9	1.1	35.0	27.1	0.0	1.8	0.7	0.0	8.3	38.0	73.0
105		M.E. 60 Kw	120 M ³ /Hr.	23,000	38.2	1.3	39.5	30.5	0.0	1.8	0.7	0.0	8.3	41.4	80.8
106	Mezcladora de Concreto Tipo Trompo	8 Kw	9 Pie ³	500	3.0	0.1	3.1	2.1	0.0	0.0	0.0	0.1	0.0	2.3	5.4
107		18 Kw	7 Pie ³	1,500	7.5	0.2	7.7	5.4	0.0	0.0	0.0	0.1	0.0	5.5	13.1
108	Mezcladora de Concreto Tipo Tambor	23 Kw	11-12 Pie ³	2,200	12.3	0.3	12.6	8.9	0.0	0.0	0.0	0.1	0.0	9.0	21.6
109		20-35 Kw	16 Pie ³	2,700	15.9	0.4	16.2	11.4	0.0	0.0	0.0	0.1	0.0	11.5	27.7
Equipos para Refine y Afirmado															
110		65-80		6,000	17.9	0.5	18.4	11.9	27.5	2.9	1.2	0.2	8.3	52.0	70.4
111		85-120		9,100	24.1	0.6	24.8	16.1	40.0	4.6	1.8	0.2	8.3	71.1	95.9
112		125		11,515	25.6	0.7	26.3	17.0	53.8	4.7	1.9	0.2	8.3	85.9	112.1
113	Motoniveladora	130-135		12,365	34.1	0.9	35.0	22.7	53.8	5.0	2.0	0.2	8.3	92.1	127.0
114		145-150		13,540	33.8	0.9	34.7	22.5	62.5	5.8	2.3	0.2	8.3	101.7	136.4
115		180-200		18,370	56.7	1.5	58.2	37.7	68.8	6.2	2.5	0.6	8.3	124.1	182.2
Equipos para Pavimentación															
116	Amasadora de Asfalto	23.5	5.4 M ³	9,500	28.6	0.5	29.1	22.9	62.5	2.0	0.8	0.1	8.3	96.5	125.7
117	Barredora Mecánica	10-20	7 Pulg. LON	1,000	6.2	0.1	6.3	4.5	12.5	1.3	0.5	0.1	8.3	27.2	33.5
118	Calentador de Aceite 48-S	5	468 P ³	5,700	11.1	0.2	11.3	6.7	0.0	0.0	0.0	0.0	8.3	15.0	26.2
119	Cocina de Asfalto		320 Gln	2,100	9.8	0.2	9.9	3.5	5.0	1.3	0.5	0.1	8.3	18.7	28.7
120	Planta de Asfalto en frío	M.E. 30	30-60 Ton/Hr.	9,000	21.6	0.7	22.4	17.3	0.0	1.5	0.6	0.2	8.3	27.8	50.2
121	Secador de Aridos	M.E. 50	30-64 Ton/Hr.	8,000	14.3	0.5	14.8	11.5	0.0	0.0	0.0	0.0	8.3	19.8	34.6
122	Planta de Asfalto en frío	M.E. 50	60-115 Ton/Hr.	9,000	30.9	1.0	32.0	24.7	0.0	1.5	0.6	0.2	8.3	35.2	67.2
123	Planta de Asfalto en Caliente (CYBER)		60 Ton/Hr.	32,350	73.2	2.3	75.5	0.0	1,237.5	5.2	2.1	0.0	8.3	1,253.1	1,328.6
124	Planta de Asfalto en Caliente (CIFALLI)		90-120 Ton/Hr.	46,800	70.8	2.2	73.0	0.0	1,987.5	5.2	2.1	0.0	8.3	2,003.1	2,076.1
125	Secador de Aridos	M.E. 70	60-115 Ton/Hr.	8,500	18.8	0.6	19.4	10.0	0.0	6.0	2.4	0.0	8.3	26.7	46.1
126	Pavimentadora sobre oruga	69	10 Pulg.	12,000	34.2	1.2	35.3	22.8	23.3	3.8	1.5	0.0	8.3	59.7	95.1

17,808.4

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	5.3	0.4	5.6	4.2	21.6	4.3	1.7	0.2	7.8	39.8	45.4
2		90	2,000 Kg	3,000	6.8	0.5	7.3	5.4	23.0	4.6	1.8	0.3	7.8	42.9	50.3
3	Camioneta Pick-Up 4X4 - C. Simple	107	1,000 Kg	2,450	5.9	0.4	6.3	4.7	27.0	4.3	1.7	0.2	7.8	45.7	52.0
4		90	750 Kg	1,850	6.4	0.5	6.8	5.1	21.6	4.3	1.7	0.3	7.8	40.7	47.6
5	Camioneta Pick-Up 4X2 - C. Doble	118	5 Pas.	1,850	6.1	0.5	6.5	4.8	24.3	4.3	1.7	0.3	7.8	43.2	49.7
6	Camioneta Rural 4X4	135	5 Pas.	1,882	8.0	0.6	8.6	6.4	35.8	4.3	1.7	0.3	7.8	56.3	64.9
7	Camioneta Station Wagon 4x2	100	6 Pas.	1,800	5.1	0.4	5.5	4.1	27.0	4.3	1.7	0.3	7.8	45.1	50.6
8		122	1,500 Gln	9,900	17.2	1.7	18.8	12.9	48.8	4.7	1.9	0.4	7.8	76.3	95.1
9	Cisterna de Agua 4X2	145-165	2,000 Gln	13,000	19.7	1.9	21.6	14.8	50.0	4.7	1.9	0.4	7.8	79.5	101.1
10		178-210	3,000 Gln	19,000	24.3	2.3	26.6	15.1	70.0	7.2	2.9	0.6	7.8	103.6	130.2
11	Cisterna de Combustible 4X2	122	2,000 Gln	13,000	20.7	2.0	22.7	12.9	41.3	4.7	1.9	0.4	7.8	68.8	91.5
12	Cisterna de Asfalto 4X2	178-210	2,000 Gln	13,000	23.8	2.3	26.1	14.8	69.9	7.2	2.9	0.5	7.8	103.1	129.2
13	Concretero 4X2	178-210	4 M ³	19,000	47.5	4.6	52.1	29.7	69.9	8.9	3.6	0.5	7.8	120.4	172.4
14	Concretero 6X4	300	6 M ³	26,000	54.7	5.3	60.0	34.2	100.0	10.7	4.3	0.5	7.8	157.5	217.5
15	Dumper 6X4	146-240	12 M ³	32,200	49.3	4.8	54.0	30.7	48.3	5.0	2.0	1.0	7.8	94.7	148.8
16	Dumper 6x6	146-240	13 M ³	38,400	59.0	5.7	64.7	36.8	69.9	7.2	2.9	1.5	7.8	126.0	190.7
17	Camión Imprimador 6X2	178-210	1,800 Gln	16,475	23.9	2.3	26.2	14.9	69.9	10.6	4.2	0.2	7.8	107.7	134.0
18		122	8 Ton.	13,000	26.0	2.5	28.5	16.2	32.5	10.5	4.2	0.4	7.8	71.5	100.0
19	Plataforma 4X2	178-210	12 Ton.	19,000	32.8	3.2	36.0	20.5	35.0	10.5	4.2	0.4	7.8	78.3	114.3
20	Plataforma 6X4	300	19 Ton.	26,000	65.8	6.3	72.1	41.1	81.3	17.6	7.0	0.5	7.8	155.3	227.3
21	Semitrayler 6X4	330	35 Ton.	42,600	48.3	4.6	52.9	36.2	97.4	17.8	7.1	0.4	7.8	166.7	219.6
22		330	40 Ton.	54,420	49.3	4.7	54.0	36.9	97.4	17.8	7.1	0.5	7.8	167.5	221.5
23		120-140	4 M ³	11,500	13.8	1.3	15.1	13.7	60.0	7.2	2.9	0.4	7.8	92.0	107.0
24	Volquete 4X2	140-210	6 M ³	15,000	18.6	1.8	20.3	18.5	69.9	10.7	4.3	0.5	7.8	111.6	131.9
25		210-280	8 M ³	19,000	25.6	2.5	28.1	25.5	93.3	14.2	5.7	1.0	7.8	147.4	175.5
26	Volquete 6X4	330	10 M ³	26,000	26.1	2.5	28.7	26.0	109.9	17.8	7.1	1.0	7.8	169.6	198.3
27	Volquete 6X4	420	15 M ³	35,454	35.6	3.4	39.0	35.5	133.3	18.0	7.2	0.5	7.8	202.3	241.3

3507.7

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 Kw	150 Ton/Hr.	4,000	6.1	0.5	6.6	4.0	0.0	0.2	0.1	0.0	0.0	4.3	10.9
2	Faja Transportadora 18"X50'	M.E. 3 Kw	150 Ton/Hr.	4,000	6.5	0.6	7.1	4.3	0.0	0.2	0.1	0.0	0.0	4.6	11.7
3	Faja Transportadora 30"X40'	M.E. 5 Kw	550 Ton/Hr.	7,800	6.9	0.6	7.5	4.6	0.0	0.2	0.1	0.0	0.0	4.8	12.3
4	Faja Transportadora 30"X50'	M.E. 5 Kw	800 Ton/Hr.	12,000	7.7	0.7	8.4	5.1	0.0	0.2	0.1	0.0	0.0	5.4	13.8
5	Faja Transportadora 30"X60'	M.E. 7 Kw	800 Ton/Hr.	15,000	10.3	0.9	11.2	6.9	0.0	0.2	0.1	0.0	0.0	7.1	18.3
6		38	20 Kw	500	3.8	0.4	4.1	3.5	0.0	0.0	0.0	0.0	0.0	3.5	7.7
7		56	37.5 Kw	720	4.3	0.4	4.7	4.0	0.0	0.0	0.0	0.0	0.0	4.0	8.8
8		89	50 Kw	1,150	5.2	0.5	5.7	4.8	0.0	0.0	0.0	0.0	0.0	4.8	10.5
9		116	75 Kw	1,500	6.1	0.6	6.7	5.7	0.0	0.0	0.0	0.0	0.0	5.7	12.4
10		140	90 Kw	1,700	7.7	0.8	8.5	7.2	0.0	0.0	0.0	0.0	0.0	7.2	15.8