

## Costo Referencial de Posesión y Operación de Equipo Mecánico del MTC

\* Enero 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)
<b>Equipos para Perforación</b>															
1	Compresoras Neumáticas	76	125-175 PCM	2,000	4.0	0.0	4.0	3.1	22.5	2.9	1.2	0.0	8.3	38.0	41.9
2		87	250-330 PCM	2,000	9.4	0.0	9.4	7.3	28.8	2.9	1.2	0.0	8.3	48.5	57.9
3		93	335-375 PCM	2,500	12.8	0.3	13.0	10.0	45.0	3.3	1.3	0.0	8.3	67.9	80.9
4		150	380-590 PCM	3,500	17.3	0.3	17.7	13.5	47.5	4.0	1.6	0.0	8.3	75.0	92.6
5		196	600-690 PCM	5,000	13.3	0.3	13.6	10.4	91.3	6.1	2.4	0.0	8.3	118.6	132.2
6		240	700-800 PCM	6,500	14.8	0.3	15.0	11.5	108.8	7.5	3.0	0.0	8.3	139.2	154.2
7	Martillos Neumáticos	24 Kg	24	24	3.2	0.0	3.2	2.5	0.0	0.0	0.0	0.0	0.0	2.5	5.7
8		29 Kg	29	29	4.1	0.1	4.2	3.2	0.0	0.0	0.0	0.0	0.0	3.2	7.4
9	Motoperforadora	1400 RPM	185 CC	26	5.0	0.1	5.1	1.6	0.0	0.0	0.0	0.0	0.0	1.6	6.7
10	Perforadora sobre Orugas		660-690 PCM	6,000	20.5	0.4	20.9	16.4	0.0	0.0	0.0	0.0	0.0	16.4	37.3
<b>Equipos para Movimiento de Tierra</b>															
11	Cargador sobre Oruga	50-79	0.7-1.3 Yd <sup>3</sup>	10,000	20.2	0.4	20.7	13.5	41.3	3.6	1.4	0.0	8.3	68.1	88.7
12		80-105	1.5-1.75 Yd <sup>3</sup>	12,967	24.0	0.5	24.5	16.0	45.0	4.7	1.9	0.0	8.3	75.8	100.3
13		110-135	2.0-2.25 Yd <sup>3</sup>	16,275	41.3	0.9	42.2	27.5	45.0	5.4	2.2	0.0	8.3	88.4	130.6
14		150-180	2.5-2.75 Yd <sup>3</sup>	18,387	50.2	1.1	51.3	33.5	70.0	5.8	2.3	0.0	8.3	119.8	171.1
15		190-225	3.2-3.75 Yd <sup>3</sup>	25,173	88.9	1.9	90.8	35.6	77.5	7.5	3.0	0.0	8.3	131.9	222.7
16		245	4.0-6.0 Yd <sup>3</sup>	28,000	92.5	2.0	94.4	37.0	87.5	7.9	3.2	0.0	8.3	143.9	238.3
17	Cargador Retroexcavador	62	1 Yd <sup>3</sup>	8,000	22.0	0.4	22.5	12.3	38.8	3.7	1.5	0.1	8.3	64.8	87.2
18	Cargador sobre Llantas	80-95	1.5-1.75 Yd <sup>3</sup>	9,031	29.8	0.6	30.4	19.8	25.0	3.3	1.3	1.2	8.3	58.8	89.2
19		100-115	2.0-2.35 Yd <sup>3</sup>	10,308	27.1	0.5	27.6	18.0	35.0	4.3	1.7	1.2	8.3	68.4	96.0
20		100-125	2.50 Yd <sup>3</sup>	11,500	40.0	0.7	40.8	26.6	35.0	5.0	2.0	0.9	8.3	77.8	118.6
21		125-155	3.0 Yd <sup>3</sup>	16,584	40.0	0.7	40.7	26.6	56.3	5.0	2.0	1.0	8.3	99.1	139.9
22		160-195	3.5 Yd <sup>3</sup>	18,585	52.0	1.0	53.0	34.6	60.0	5.4	2.2	1.7	8.3	112.2	165.2
23		200-250	4.0 - 4.1 Yd <sup>3</sup>	20,826	58.2	1.3	59.4	38.6	62.5	6.1	2.4	2.3	8.3	120.2	179.6
24	Mototrallas Autocargable	200-250	4.6 Yd <sup>3</sup>	22,000	60.4	1.3	61.7	40.1	66.3	7.9	3.2	2.3	8.3	128.0	189.7
25		260-300	5.0-5.50 Yd <sup>3</sup>	31,105	83.6	1.8	85.4	55.6	68.8	9.0	3.6	2.3	8.3	147.5	232.9
26		375	8.0 Yd <sup>3</sup>	49,738	120.8	2.6	123.4	80.3	87.5	11.1	4.4	3.1	8.3	194.7	318.1
27		140-200	11.0 Yd <sup>3</sup>	14,200	62.4	1.2	63.5	20.7	66.3	6.2	2.5	2.4	8.3	106.3	169.8
28		210-300	16.0 Yd <sup>3</sup>	20,600	94.3	1.8	96.1	31.3	93.8	9.0	3.6	3.0	8.3	148.9	245.0
29		310-350	23.0 Yd <sup>3</sup>	32,800	91.5	2.0	93.5	30.4	120.0	10.8	4.3	2.2	8.3	175.9	269.4
30	Retroexcavadora sobre Llantas	310-400	14-20 Yd <sup>3</sup>	20,000	88.9	1.9	90.8	29.5	125.0	11.8	4.7	2.3	8.3	181.7	272.5
31		405-480	21-31 Yd <sup>3</sup>	15,500	141.3	3.1	144.3	46.9	165.0	14.3	5.7	3.3	8.3	243.5	387.8
32	Retroexcavadora sobre Oruga	58	1 Yd <sup>3</sup>	9,000	18.2	0.3	18.5	7.9	25.0	2.5	1.0	0.2	8.3	45.0	63.5
33	Ripper (Potencia 150 HP)	80-110	0.50-1.3 Yd <sup>3</sup>	17,300	49.4	0.9	50.3	19.8	41.3	8.7	3.5	0.0	8.3	81.5	131.8
34		115-165	0.75-1.60 Yd <sup>3</sup>	23,400	68.7	1.3	70.0	27.5	62.5	8.8	3.5	0.0	8.3	110.6	180.6
35		170-250	1.10-2.75 Yd <sup>3</sup>	33,800	113.9	2.1	116.0	45.6	87.5	9.9	4.0	0.0	8.3	155.3	271.3
36		325	2.0-3.8 Yd <sup>3</sup>	61,600	190.6	3.5	194.1	76.2	112.5	10.1	4.0	0.0	8.3	211.1	405.3
37	Ripper (Potencia 250 HP)		2,000	3.5	0.1	3.6	2.0	0.0	0.0	0.0	0.0	0.0	2.0	5.6	
38	Ripper (Potencia 300 HP)		2,600	5.9	0.1	6.0	3.3	0.0	0.0	0.0	0.0	0.0	3.3	9.3	
39	Ripper (Potencia 470 HP)		4,400	10.2	0.2	10.4	5.7	0.0	0.0	0.0	0.0	0.0	5.7	16.1	
40	Ripper (Potencia 150 HP)		6,600	13.3	0.2	13.6	7.4	0.0	0.0	0.0	0.0	0.0	7.4	21.0	
41	Tractor sobre Orugas	60-70	6,711	21.1	0.4	21.5	11.3	30.0	2.5	1.0	0.0	8.3	53.1	74.6	
42		75-100	9,090	32.3	0.6	32.9	17.2	31.3	2.7	1.1	0.0	8.3	60.5	93.4	
43		105-135	12,300	45.6	0.8	46.4	24.3	37.5	4.7	1.9	0.0	8.3	76.6	123.0	
44		140-160	14,900	39.8	0.7	40.6	21.2	62.5	5.4	2.2	0.0	8.3	99.6	140.1	
45		190-240	20,520	76.4	1.6	78.0	40.7	68.8	7.2	2.9	0.0	8.3	127.9	205.9	
46		270-295	21,863	73.8	1.9	75.7	39.4	87.5	7.9	3.2	0.0	8.3	146.2	221.9	
47		300-330	31,980	73.5	1.9	75.4	49.0	128.8	8.6	3.5	0.0	8.3	198.1	273.6	
48		335-410	37,170	80.9	2.1	83.0	53.9	137.5	10.4	4.2	0.0	8.3	214.3	297.3	
49		410-470	52,007	111.0	2.9	113.9	59.2	163.8	12.8	5.1	0.0	8.3	249.2	363.1	
50		510	54,760	140.6	3.7	144.3	75.0	163.8	14.6	5.8	0.0	8.3	267.5	411.8	
51		650	70,320	180.9	4.7	185.6	120.6	206.3	31.5	12.6	0.0	8.3	379.2	564.8	
52	Tractor sobre Llantas	200-250	20,500	42.5	0.8	43.3	28.2	102.5	10.6	4.2	2.3	8.3	156.1	199.3	
53		300-350	30,380	55.7	1.0	56.8	36.9	148.8	14.2	5.7	4.5	8.3	218.3	275.1	
54		400-500	46,355	119.6	2.2	121.8	79.4	150.0	17.7	7.1	4.9	8.3	267.4	389.2	
55	Pala Frontal	195	3.0 Yd <sup>3</sup>	38,380	148.0	2.7	150.7	118.4	136.3	7.2	2.9	0.0	8.3	273.0	423.8
<b>Equipos de Compactación</b>															
56	Vibrador de Concreto	4	1.25 Pulg.		2.8	0.0	2.8	1.5	0.0	0.0	0.0	0.0	1.5	4.3	
57		4	1.50 Pulg.		2.9	0.0	2.9	1.6	0.0	0.0	0.0	0.0	1.6	4.5	
58		4	2.40 Pulg.		3.4	0.0	3.5	1.9	0.0	0.0	0.0	0.0	1.9	5.3	
59	Compactador Vibrador Tipo Plancha	4	95	2.0	0.0	2.0	0.8	3.4	0.4	0.2	0.0	8.3	13.1	15.1	
60		5.8	145	2.4	0.0	2.4	1.0	3.9	0.8	0.3	0.0	8.3	14.3	16.8	
61		7	160	3.7	0.0	3.7	1.2	4.1	1.1	0.5	0.0	8.3	15.2	18.9	
62		10.8	800	3.8	0.1	3.9	3.1	5.6	1.8	0.7	0.0	8.3	19.5	23.5	
63	Rodillo Liso Vibratorio Manual	70-100	7-9 Ton.	7,300	15.4	0.3	15.7	8.2	26.3	3.3	1.3	0.8	8.3	48.0	63.8
64	Rodillo Liso Vibratorio Autopropulsado	101-135	10-12 Ton.	11,100	16.5	0.3	16.8	8.7	43.8	5.0	2.0	0.8	8.3	68.5	85.3
65		136-170	15-17 Ton.	13,700	20.2	0.4	20.6	10.7	46.3	5.4	2.2	0.8	8.3	73.5	94.1
66	Rodillo Liso Vibratorio de Tiro	210	19-23 Ton.	19,600	23.2	0.4	23.6	12.2	69.9	7.2	2.9	1.1	8.3	101.6	125.2
67	Rodillo Neumático Autopropulsado	50-80	4-5.5 Ton.	5,500	5.8	0.1	5.9	3.1	23.8	2.9	1.2	0.0	8.3	39.2	45.2
68		60-80	3.0-5.0 Ton.	3,700	11.9	0.3	12.2	4.7	21.3	2.9	1.2	0.2	8.3	38.6	50.8
69		81-100	5.5-20 Ton.	5,500	15.9	0.3	16.3	4.2	25.0	3.3	1.3	0.2	8.3	42.3	58.6
70		127	8.23 Ton.	8,000	12.1	0.3	12.3	6.4	38.8	4.7	1.9	0.2	8.3	60.2	72.6
71		135	9.26 Ton.	9,000	12.3	0.3	12.6	6.5	38.3	4.7	1.9	0.2	8.3	59.9	72.5
72		84	8.1 Ton.	8,200	9.2	0.2	9.4	7.3	28.3	2.9	1.2	0.7	8.3	48.6	58.0
73	Pata de Cabra Vibratorio Autopropulsado	100-135	11-13 Ton.	11,300	16.1	0.4	16.5	8.5	37.9	4.7	1.9	0.7	8.3	62.0	78.4
74		136-180	15-17 Ton.	15,300	17.1	0.4	17.4	11.3	50.6	5.7	2.3	0.7	8.3	79.0	96.4
75		210	20-22 Ton.	21,500	20.1	0.4	20.5	13.2							

## Costo Referencial de Posesión y Operación de Equipo Mecánico del MTC

\* Enero 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	18.5	0.6	19.1	9.2	0.0	1.5	0.6	0.1	8.3	19.8	38.9
98	Chancadora Secundaria 36"S	M.E. 75	46-70 Ton/Hr.	23,000	32.0	1.0	33.0	16.0	0.0	1.5	0.6	0.1	8.3	26.5	59.5
99	Chancadora Primaria-Secundaria (Incluye 5 fajas)	M.E. 75	46-70 Ton/Hr.	39,000	64.8	2.2	67.0	34.6	112.5	1.6	0.6	0.1	8.3	157.7	224.7
100	Chancadora Primaria - Secundaria (Azteca)		40-80 Ton/Hr.		27.7	1.8	29.5	11.1	0.0	0.0	0.0	0.0	9.3	20.4	49.9
101	Chancadora Primaria - Secundaria (Escorpión)		60-120 Ton/Hr.		34.7	2.2	36.9	13.9	0.0	0.0	0.0	0.0	10.3	24.2	61.1
102	Zaranda Vibratoria 4"x6"x14'	M.E. 15	11 Kw	7,000	9.6	0.3	9.9	6.4	0.0	1.2	0.5	0.1	8.3	16.5	26.4
<b>Equipos para Obras de Concreto</b>															
103		M.E. 40	50 M <sup>3</sup> /Hr.	17,000	26.3	0.9	27.2	21.0	0.0	1.8	0.7	0.0	8.3	31.9	59.0
104	Dosificadora de Concreto	M.E. 45	50-90 M <sup>3</sup> /Hr.	20,000	31.2	1.1	32.3	25.0	0.0	1.8	0.7	0.0	8.3	35.8	68.1
105		M.E. 60	120 M <sup>3</sup> /Hr.	23,000	35.2	1.2	36.4	28.1	0.0	1.8	0.7	0.0	8.3	39.0	75.3
106	Mezcladora de Concreto Tipo Trompo		9 Pie <sup>3</sup>	500	2.8	0.1	2.8	2.0	0.0	0.0	0.0	0.1	0.0	2.1	4.9
107		18	7 Pie <sup>3</sup>	1,500	6.9	0.2	7.1	5.0	0.0	0.0	0.0	0.1	0.0	5.0	12.1
108	Mezcladora de Concreto Tipo Tambor	23	11-12 Pie <sup>3</sup>	2,200	11.4	0.3	11.6	8.2	0.0	0.0	0.0	0.1	0.0	8.3	19.9
109		20-35	16 Pie <sup>3</sup>	2,700	14.6	0.3	14.9	10.5	0.0	0.0	0.0	0.1	0.0	10.6	25.5
<b>Equipos para Refine y Afirmado</b>															
110		65-80		6,000	16.5	0.4	16.9	11.0	27.5	2.9	1.2	0.2	8.3	51.1	68.0
111		85-120		9,100	22.2	0.6	22.8	14.8	40.0	4.6	1.8	0.2	8.3	69.8	92.6
112		125		11,515	23.6	0.6	24.2	15.7	53.8	4.7	1.9	0.2	8.3	84.5	108.7
113	Motoniveladora	130-135		12,365	31.4	0.8	32.2	20.9	53.8	5.0	2.0	0.2	8.3	90.3	122.5
114		145-150		13,540	31.2	0.8	32.0	20.7	62.5	5.8	2.3	0.2	8.3	100.0	131.9
115		180-200		18,370	52.2	1.4	53.6	34.7	68.8	6.2	2.5	0.6	8.3	121.1	174.6
<b>Equipos para Pavimentación</b>															
116	Amasadora de Asfalto	23.5	5.4 M <sup>3</sup>	9,500	26.3	0.5	26.8	21.1	62.5	2.0	0.8	0.1	8.3	94.7	121.6
117	Barredora Mecánica	10-20	7 Pulg. LON	1,000	5.7	0.1	5.8	4.1	12.5	1.3	0.5	0.1	8.3	26.9	32.7
118	Calentador de Aceite 48-S	5	468 P <sup>3</sup>	5,700	10.2	0.2	10.4	6.1	0.0	0.0	0.0	0.0	8.3	14.5	24.8
119	Cocina de Asfalto		320 Gln	2,100	9.0	0.2	9.1	3.2	5.0	1.3	0.5	0.1	8.3	18.5	27.6
120	Planta de Asfalto en frío	M.E. 30	30-60 Ton/Hr.	9,000	19.9	0.7	20.6	15.9	0.0	1.5	0.6	0.2	8.3	26.4	47.0
121	Secador de Aridos	M.E. 50	30-64 Ton/Hr.	8,000	13.2	0.5	13.7	10.6	0.0	0.0	0.0	0.0	8.3	18.9	32.5
122	Planta de Asfalto en frío	M.E. 50	60-115 Ton/Hr.	9,000	28.5	1.0	29.4	22.8	0.0	1.5	0.6	0.2	8.3	33.3	62.7
123	Planta de Asfalto en Caliente (CYBER)		60 Ton/Hr.	32,350	67.4	2.1	69.5	0.0	1,237.5	5.2	2.1	0.0	8.3	1,253.1	1,322.7
124	Planta de Asfalto en Caliente (CIFALLI)		90-120 Ton/Hr.	46,800	65.2	2.1	67.3	0.0	1,987.5	5.2	2.1	0.0	8.3	2,003.1	2,070.4
125	Secador de Aridos	M.E. 70	60-115 Ton/Hr.	8,500	17.3	0.6	17.9	9.2	0.0	6.0	2.4	0.0	8.3	25.9	43.8
126	Pavimentadora sobre oruga	69	10 Pulg.	12,000	31.5	1.1	32.6	21.0	23.3	3.8	1.5	0.0	8.3	57.9	90.5

17,218.9

### 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	4.8	0.4	5.2	3.9	20.8	4.3	1.7	0.2	7.8	38.7	43.8
2		90	2,000 Kg	3,000	6.3	0.5	6.7	5.0	22.1	4.6	1.8	0.3	7.8	41.7	48.4
3	Camioneta Pick-Up 4X4 - C. Simple	107	1,000 Kg	2,450	5.4	0.4	5.8	4.3	26.0	4.3	1.7	0.2	7.8	44.3	50.1
4	Camioneta Pick-Up 4X2 - C. Doble	90	750 Kg	1,850	5.9	0.4	6.3	4.7	20.8	4.3	1.7	0.3	7.8	39.5	45.8
5		118	5 Pas.	1,850	5.6	0.4	6.0	4.5	23.4	4.3	1.7	0.3	7.8	41.9	47.9
6	Camioneta Rural 4X4	135	5 Pas.	1,882	7.4	0.5	7.9	5.9	34.5	4.3	1.7	0.3	7.8	54.4	62.4
7	Camioneta Station Wagon 4x2	100	6 Pas.	1,800	4.7	0.3	5.0	3.7	26.0	4.3	1.7	0.3	7.8	43.8	48.8
8		122	1,500 Gln	9,900	15.8	1.5	17.4	11.8	48.8	4.7	1.9	0.4	7.8	75.3	92.6
9	Cisterna de Agua 4X2	145-165	2,000 Gln	13,000	18.2	1.8	19.9	13.6	50.0	4.7	1.9	0.4	7.8	78.3	98.2
10		178-210	3,000 Gln	19,000	22.4	2.2	24.5	13.9	70.0	7.2	2.9	0.6	7.8	102.4	126.9
11	Cisterna de Combustible 4X2	122	2,000 Gln	13,000	19.1	1.8	20.9	11.9	41.3	4.7	1.9	0.4	7.8	67.8	88.7
12	Cisterna de Asfalto 4X2	178-210	2,000 Gln	13,000	21.9	2.1	24.0	13.7	69.9	7.2	2.9	0.5	7.8	101.9	126.0
13	Concretero 4X2	178-210	4 M <sup>3</sup>	19,000	43.8	4.2	48.0	27.3	69.9	8.9	3.6	0.5	7.8	118.0	166.0
14	Concretero 6X4	300	6 M <sup>3</sup>	26,000	50.4	4.8	55.3	31.5	100.0	10.7	4.3	0.5	7.8	154.8	210.0
15	Dumper 6X4	146-240	12 M <sup>3</sup>	32,200	45.4	4.4	49.8	28.3	48.3	5.0	2.0	1.0	7.8	92.3	142.1
16	Dumper 6x6	146-240	13 M <sup>3</sup>	38,400	54.4	5.2	59.6	33.8	69.9	7.2	2.9	1.5	7.8	123.1	182.7
17	Camión Imprimador 6X2	178-210	1,800 Gln	16,475	22.1	2.1	24.2	13.8	69.9	10.6	4.2	0.2	7.8	106.5	130.7
18	Plataforma 4X2	122	8 Ton.	13,000	23.9	2.3	26.2	14.9	32.5	10.5	4.2	0.4	7.8	70.2	96.4
19	Plataforma 6X4	178-210	12 Ton.	19,000	30.2	2.9	33.1	18.9	35.0	10.5	4.2	0.4	7.8	76.7	109.8
20		300	19 Ton.	26,000	60.6	5.8	66.4	37.8	81.3	17.6	7.0	0.5	7.8	152.0	218.4
21	Semitrayler 6X4	330	35 Ton.	42,600	44.5	4.3	48.8	33.3	97.4	17.8	7.1	0.4	7.8	163.8	212.6
22		330	40 Ton.	54,420	45.4	4.4	49.8	34.0	97.4	17.8	7.1	0.5	7.8	164.6	214.3
23		120-140	4 M <sup>3</sup>	11,500	12.7	1.2	13.9	12.6	60.0	7.2	2.9	0.4	7.8	90.9	104.8
24	Volquete 4X2	140-210	6 M <sup>3</sup>	15,000	17.1	1.6	18.7	17.0	69.9	10.7	4.3	0.5	7.8	110.1	128.9
25		210-280	8 M <sup>3</sup>	19,000	23.6	2.3	25.8	23.5	93.3	14.2	5.7	1.0	7.8	145.4	171.2
26	Volquete 6X4	330	10 M <sup>3</sup>	26,000	24.1	2.3	26.4	24.0	109.9	17.8	7.1	1.0	7.8	167.6	194.0

3161.6

### 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	5.6	0.5	6.1	3.7	0.0	0.2	0.1	0.0	0.0	4.0	10.0
2	Faja Transportadora 18"X50'	M.E. 3	150 Ton/Hr.	4,000	6.0	0.5	6.5	4.0	0.0	0.2	0.1	0.0	0.0	4.3	10.8
3	Faja Transportadora 30"X40'	M.E. 5	550 Ton/Hr.	7,800	6.3	0.6	6.9	4.2	0.0	0.2	0.1	0.0	0.0	4.5	11.3
4	Faja Transportadora 30"X50'	M.E. 5	800 Ton/Hr.	12,000	7.1	0.6	7.7	4.7	0.0	0.2	0.1	0.0	0.0	5.0	12.7
5	Faja Transportadora 30"X60'	M.E. 7	800 Ton/Hr.	15,000	9.5	0.8	10.3	6.3	0.0	0.2	0.1	0.0	0.0	6.6	16.9
6		38	20 Kw	500	3.5	0.4	3.8	3.2	0.0	0.0	0.0	0.0	0.0	3.2	7.1
7		56	37.5 Kw	720	4.0	0.4	4.4	3.7	0.0	0.0	0.0	0.0	0.0	3.7	8.1
8		89	50 Kw	1,150	4.8	0.5	5.3	4.4	0.0	0.0	0.0	0.0	0.0	4.4	9.7
9		116	75 Kw	1,500	5.6	0.6	6.2	5.3	0.0	0.0	0.0	0.0	0.0	5.3	11.5
10	Grupo Electrónico	140	90 Kw	1,700	7.1	0.7	7.9	6.7	0.0	0.0	0.0	0.0	0.0	6.7	14.5
11		230	150 Kw	2,000	16.9	1.7	18.6	15.7	0.0	0.0	0.0	0.0	0.0	15.7	34.3
12		380	250 Kw	2,700	23.9	2.4	26.3	22.3	0.0	0.0	0.0	0.0	0.0	22.3	48.6
13		460	300 Kw	3,500	25.7	2.6	28.3	24.0	0.0	0.0	0.0	0.0	0.0	24.0	52.3
14		68	3,000 Kg	5,200	9.7	0.9	10.5	2.6	15.0	2.5	1.0	0.0	8.3	29.5	40.0
15	Montacargas	80	5,000 Kg	8,150	17.4	1.5	18.9	11.6	26.6	2.9	1.2	0.0	8.3	50.7	69.6
16		94	7,500 Kg	9,150	18.7	1.6	20.4	12.5	31.6	3.3	1.3	0.0	8.3	57.0	77.4
17	Grúa Hidráulica Telescópica	127	18 Ton - 9 mt	20,000	43.3	4.4	47.7	34.5	43.3	4.7	1.9	0.5	8.3	93.1	140.8
18	Grúa Hidráulica Telescópica	155	35 Ton - 9.6 mt	36,000	44.6	5.9	50.4	35.6	66.6	5.0	2.0	0.5	8.3	118.0	168.5
19	Grúa Hidráulica Telescópica	225	50 Ton corta	39,000	78.9	10.4	89.2	63.0	106.5	7.5	3.0	0.2	8.3	188.6	277.9
20	Grúa Tipo Fricción-PLMA CELOSI	335	70 Ton corta	50,150	90.9	11.9	102.8	72.7	111.5						