

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

\* Julio 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)	
<b>Equipos para Perforación</b>															
1		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	42.0
2		87	250-330 PCM	2,000	9.5	0.0	9.5	7.4	28.8	2.9	1.2	0.0	8.3	48.6	58.0
3	Compresoras Neumáticas	93	335-575 PCM	2,500	12.9	0.3	13.2	10.1	45.0	3.3	1.3	0.0	8.3	68.0	81.1
4		150	380-590 PCM	3,500	17.5	0.3	17.8	13.7	47.5	4.0	1.6	0.0	8.3	75.1	92.9
5		196	600-690 PCM	5,000	13.5	0.3	13.7	10.5	91.3	6.1	2.4	0.0	8.3	118.7	132.4
6		240	700-800 PCM	6,500	14.9	0.3	15.2	11.7	108.8	7.5	3.0	0.0	8.3	139.3	154.5
7			24 Kg	24	3.2	0.0	3.2	2.5	0.0	0.0	0.0	0.0	0.0	2.5	5.7
8	Martillos Neumáticos		29 Kg	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	20.7	0.4	21.1	16.5	0.0	0.0	0.0	0.0	0.0	16.5	37.6
<b>Equipos para Movimiento de Tierra</b>															
11		50-79	0.7-1.3 Yd <sup>3</sup>	10,000	20.4	0.4	20.9	13.6	41.3	3.6	1.4	0.0	8.3	68.2	89.1
12	Cargador sobre Oruga	80-105	1.5-1.75 Yd <sup>3</sup>	12,967	24.2	0.5	24.7	16.1	45.0	4.7	1.9	0.0	8.3	76.0	100.7
13		110-135	2.0-2.25 Yd <sup>3</sup>	16,275	41.7	0.9	42.6	27.8	45.0	5.4	2.2	0.0	8.3	88.7	131.3
14		150-180	2.5-2.75 Yd <sup>3</sup>	18,387	50.7	1.1	51.8	33.8	70.0	5.8	2.3	0.0	8.3	120.2	172.0
15		190-225	3.2-3.75 Yd <sup>3</sup>	25,173	89.8	1.9	91.7	35.9	77.5	7.5	3.0	0.0	8.3	132.3	224.0
16		245	4.0-6.0 Yd <sup>3</sup>	28,000	93.4	2.0	95.4	37.4	87.5	7.9	3.2	0.0	8.3	144.3	239.7
17	Cargador Retroexcavador	62	1 Yd <sup>3</sup>	8,000	22.3	0.4	22.7	12.5	38.8	3.7	1.5	0.1	8.3	64.9	87.6
18		80-95	1.5-1.75 Yd <sup>3</sup>	9,031	30.1	0.6	30.7	20.0	25.0	3.3	1.3	1.2	8.3	59.0	89.7
19		100-115	2.0-2.35 Yd <sup>3</sup>	10,308	27.3	0.5	27.9	18.1	35.0	4.3	1.7	1.2	8.3	68.6	96.5
20		100-125	2.50 Yd <sup>3</sup>	11,500	40.4	0.8	41.2	26.9	35.0	5.0	2.0	0.9	8.3	78.1	119.3
21		125-155	3.0 Yd <sup>3</sup>	16,584	40.4	0.8	41.2	26.9	56.3	5.0	2.0	1.0	8.3	99.4	140.6
22	Cargador sobre Llantas	160-195	3.5 Yd <sup>3</sup>	18,585	52.6	1.0	53.5	34.9	60.0	5.4	2.2	1.7	8.3	112.5	166.1
23		200-250	4.0 - 4.1 Yd <sup>3</sup>	20,826	58.8	1.3	60.0	39.0	62.5	6.1	2.4	2.3	8.3	120.6	180.7
24		200-250	4.6 Yd <sup>3</sup>	22,000	61.0	1.3	62.3	40.6	66.3	7.9	3.2	2.3	8.3	128.4	190.7
25		260-300	5.0-5.50 Yd <sup>3</sup>	31,105	84.5	1.8	86.3	56.2	68.8	9.0	3.6	2.3	8.3	148.1	234.4
26		375	8.0 Yd <sup>3</sup>	49,738	122.0	2.6	124.6	81.2	87.5	11.1	4.4	3.1	8.3	195.6	320.2
27		140-200	11.0 Yd <sup>3</sup>	14,200	63.0	1.2	64.2	20.9	66.3	6.2	2.5	2.4	8.3	106.5	170.7
28		210-300	16.0 Yd <sup>3</sup>	20,600	95.3	1.8	97.1	31.6	93.8	9.0	3.6	3.0	8.3	149.3	246.3
29	Mototrallas Autocargable	310-350	23.0 Yd <sup>3</sup>	32,800	92.4	2.0	94.4	30.7	120.0	10.8	4.3	2.2	8.3	176.2	270.7
30		310-400	14-20 Yd <sup>3</sup>	20,000	89.8	1.9	91.7	29.8	125.0	11.8	4.7	2.3	8.3	182.0	273.7
31		405-480	21-31 Yd <sup>3</sup>	15,500	142.7	3.1	145.8	47.4	165.0	14.3	5.7	3.3	8.3	244.0	389.8
32	Retroexcavadora sobre Llantas	58	1 Yd <sup>3</sup>	9,000	18.4	0.3	18.7	8.0	25.0	2.5	1.0	0.2	8.3	45.1	63.8
33		80-110	0.50-1.3 Yd <sup>3</sup>	17,300	49.9	0.9	50.8	20.0	41.3	8.7	3.5	0.0	8.3	81.7	132.6
34		115-165	0.75-1.60 Yd <sup>3</sup>	23,400	69.5	1.3	70.7	27.8	62.5	8.8	3.5	0.0	8.3	110.9	181.6
35	Retroexcavadora sobre Oruga	170-250	1.10-2.75 Yd <sup>3</sup>	33,800	115.1	2.1	117.2	46.0	87.5	9.9	4.0	0.0	8.3	155.8	273.0
36		325	2.0-3.8 Yd <sup>3</sup>	61,600	192.6	3.5	196.1	77.0	112.5	10.1	4.0	0.0	8.3	211.9	408.1
37	Ripper (Potencia 150 HP)			2,000	3.6	0.1	3.6	2.0	0.0	0.0	0.0	0.0	0.0	2.0	5.6
38	Ripper (Potencia 250 HP)			2,600	6.0	0.1	6.1	3.3	0.0	0.0	0.0	0.0	0.0	3.3	9.4
39	Ripper (Potencia 300 HP)			4,400	10.3	0.2	10.5	5.7	0.0	0.0	0.0	0.0	0.0	5.7	16.3
40	Ripper (Potencia 470 HP)			6,600	13.5	0.2	13.7	7.5	0.0	0.0	0.0	0.0	0.0	7.5	21.2
41		60-70		6,711	21.3	0.4	21.7	11.4	30.0	2.5	1.0	0.0	8.3	53.2	74.9
42		75-100		9,090	32.6	0.6	33.2	17.4	31.3	2.7	1.1	0.0	8.3	60.7	93.9
43		105-135		12,300	46.0	0.9	46.9	24.5	37.5	4.7	1.9	0.0	8.3	76.9	123.8
44		140-160		14,900	40.2	0.7	41.0	21.5	62.5	5.4	2.2	0.0	8.3	99.8	140.8
45		190-240		20,520	77.2	1.7	78.8	41.2	68.8	7.2	2.9	0.0	8.3	128.3	207.1
46	Tractor sobre Orugas	270-295		21,863	74.6	1.9	76.5	39.8	87.5	7.9	3.2	0.0	8.3	146.6	223.1
47		300-330		31,980	74.3	1.9	76.2	49.5	128.8	8.6	3.5	0.0	8.3	198.7	274.9
48		335-410		37,170	81.7	2.1	83.9	54.5	137.5	10.4	4.2	0.0	8.3	214.9	298.7
49		410-470		52,007	112.2	2.9	115.1	59.8	163.8	12.8	5.1	0.0	8.3	249.9	364.9
50		510		54,760	142.1	3.7	145.8	75.8	163.8	14.6	5.8	0.0	8.3	268.3	414.1
51		650		70,320	182.8	4.8	187.5	121.9	206.3	31.5	12.6	0.0	8.3	380.5	568.0
52	Tractor sobre Llantas	200-250		20,500	42.9	0.8	43.7	28.5	102.5	10.6	4.2	2.3	8.3	156.4	200.1
53		300-350		30,380	56.3	1.1	57.4	37.2	148.8	14.2	5.7	4.5	8.3	218.7	276.1
54		400-500		46,355	120.9	2.2	123.1	80.2	150.0	17.7	7.1	4.9	8.3	268.3	391.4
55	Pala Frontal	195	3.0 Yd <sup>3</sup>	38,380	149.6	2.8	152.3	119.6	136.3	7.2	2.9	0.0	8.3	274.3	426.6
<b>Equipos de Compactación</b>															
56		4	1.25 Pulg.		2.8	0.0	2.8	1.5	0.0	0.0	0.0	0.0	0.0	1.5	4.3
57	Vibrador de Concreto	4	1.50 Pulg.		2.9	0.0	2.9	1.6	0.0	0.0	0.0	0.0	0.0	1.6	4.5
58		4	2.40 Pulg.		3.5	0.0	3.5	1.9	0.0	0.0	0.0	0.0	0.0	1.9	5.4
59		4		95	2.0	0.0	2.0	0.9	3.4	0.4	0.2	0.0	8.3	13.1	15.1
60	Compactador Vibrador Tipo Plancha	5.8		145	2.5	0.0	2.5	1.1	3.9	0.8	0.3	0.0	8.3	14.3	16.8
61		7		160	3.7	0.0	3.8	1.2	4.1	1.1	0.5	0.0	8.3	15.2	19.0
62	Rodillo Liso Vibratorio Manual	10.8	0.8 - 1.1 Ton.	800	3.9	0.1	4.0	3.1	5.6	1.8	0.7	0.0	8.3	19.6	23.5
63		70-100	7-9 Ton.	7,300	15.6	0.3	15.9	8.2	26.3	3.3	1.3	0.8	8.3	48.1	64.0
64	Rodillo Liso Vibratorio Autopropulsado	101-135	10-12 Ton.	11,100	16.7	0.3	17.0	8.8	43.8	5.0	2.0	0.8	8.3	68.6	85.5
65		136-170	15-17 Ton.	13,700	20.4	0.4	20.8	10.8	46.3	5.4	2.2	0.8	8.3	73.7	94.4
66		210	19-23 Ton.	19,600	23.4	0.4	23.9	12.4	69.9	7.2	2.9	1.1	8.3	101.7	125.6
67	Rodillo Liso Vibratorio de Tiro	50-80	4-5.5 Ton.	5,500	5.9	0.1	6.0	3.1	23.8	2.9	1.2	0.0	8.3	39.3	45.3
68		60-80	3.0-5.0 Ton.	3,700	12.0	0.3	12.3	4.8	21.3	2.9	1.2	0.2	8.3	38.7	51.0
69	Rodillo Neumático Autopropulsado	81-100	5.5-20 Ton.	5,500	16.1	0.4	16.4	4.3	25.0	3.3	1.3	0.2	8.3	42.4	58.8
70		127	8.23 Ton.	8,000	12.2	0.3	12.5	6.5	38.8	4.7	1.9	0.2	8.3	60.3	72.7
71		135	9.26 Ton.	9,000	12.5	0.3	12.7	6.6	38.3	4.7	1.9	0.2	8.3	59.9	72.7
72		84	8.1 Ton.	8,200	9.3	0.2	9.5	7.3	28.3	2.9	1.2	0.7	8.3	48.7	58.2
73	Pata de Cabra Vibratorio Autopropulsado	100-135	11-13 Ton.	11,300	16.3	0.4	16.6	8.6	37.9	4.7</					

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\* Julio 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	18.7	0.6	19.3	9.3	0.0	1.5	0.6	0.1	8.3	19.9	39.1
98	Chancadora Secundaria 36"S	M.E. 75 Kw	46-70 Ton/Hr.	23,000	32.3	1.0	33.4	16.2	0.0	1.5	0.6	0.1	8.3	26.7	60.0
99	Chancadora Primaria-Secundaria (Incluye 5 faja)	M.E. 75 Kw	46-70 Ton/Hr.	39,000	65.5	2.2	67.7	34.9	112.5	1.6	0.6	0.1	8.3	158.0	225.8
100	Chancadora Primaria - Secundaria (Azteca)		40-80 Ton/Hr.		28.0	1.8	29.8	11.2	0.0	0.0	0.0	0.0	9.3	20.5	50.3
101	Chancadora Primaria - Secundaria (Escorpión)		60-120 Ton/Hr.		35.0	2.3	37.3	14.0	0.0	0.0	0.0	0.0	10.3	24.3	61.6
102	Zaranda Vibratoria 4"x6"x14'	M.E. 15 Kw	11 Kw	7,000	9.7	0.3	10.0	6.4	0.0	1.2	0.5	0.1	8.3	16.6	26.6
<b>Equipos para Obras de Concreto</b>															
103		M.E. 40 Kw	50 M <sup>3</sup> /Hr.	17,000	26.6	0.9	27.5	21.2	0.0	1.8	0.7	0.0	8.3	32.1	59.5
104	Dosificadora de Concreto	M.E. 45 Kw	50-90 M <sup>3</sup> /Hr.	20,000	31.5	1.1	32.6	25.2	0.0	1.8	0.7	0.0	8.3	36.1	68.7
105		M.E. 60 Kw	120 M <sup>3</sup> /Hr.	23,000	35.5	1.2	36.7	28.4	0.0	1.8	0.7	0.0	8.3	39.3	76.0
106	Mezcladora de Concreto Tipo Trompo	8 Kw	9 Pie <sup>3</sup>	500	2.8	0.1	2.9	2.0	0.0	0.0	0.0	0.1	0.0	2.1	5.0
107		18 Kw	7 Pie <sup>3</sup>	1,500	7.0	0.2	7.1	5.0	0.0	0.0	0.0	0.1	0.0	5.1	12.2
108	Mezcladora de Concreto Tipo Tambor	23 Kw	11-12 Pie <sup>3</sup>	2,200	11.5	0.3	11.7	8.3	0.0	0.0	0.0	0.1	0.0	8.3	20.1
109		20-35 Kw	16 Pie <sup>3</sup>	2,700	14.8	0.3	15.1	10.6	0.0	0.0	0.0	0.1	0.0	10.7	25.8
<b>Equipos para Refine y Afirmado</b>															
110		65-80		6,000	16.6	0.4	17.1	11.1	27.5	2.9	1.2	0.2	8.3	51.2	68.3
111		85-120		9,100	22.5	0.6	23.1	15.0	40.0	4.6	1.8	0.2	8.3	70.0	93.0
112	Motoniveladora	125		11,515	23.8	0.6	24.5	15.9	53.8	4.7	1.9	0.2	8.3	84.7	109.1
113		130-135		12,365	31.7	0.8	32.6	21.1	53.8	5.0	2.0	0.2	8.3	90.5	123.0
114		145-150		13,540	31.5	0.8	32.3	21.0	62.5	5.8	2.3	0.2	8.3	100.2	132.5
115		180-200		18,370	52.8	1.4	54.1	35.1	68.8	6.2	2.5	0.6	8.3	121.4	175.6
116			23.5	5.4 M <sup>3</sup>	9,500	26.6	0.5	27.1	21.3	62.5	2.0	0.8	0.1	8.3	95.0
117	Barredora Mecánica	10-20	7 Pulg. LON	1,000	5.8	0.1	5.9	4.1	12.5	1.3	0.5	0.1	8.3	26.9	32.8
118	Calentador de Aceite 48-S	5	468 P <sup>3</sup>	5,700	10.3	0.2	10.5	6.2	0.0	0.0	0.0	0.0	8.3	14.5	25.0
119	Cocina de Asfalto		320 Gln	2,100	9.1	0.2	9.2	3.3	5.0	1.3	0.5	0.1	8.3	18.5	27.7
120	Planta de Asfalto en frío	M.E. 30	30-60 Ton/Hr.	9,000	20.1	0.7	20.8	16.1	0.0	1.5	0.6	0.2	8.3	26.6	47.4
121	Secador de Aridos	M.E. 50	30-64 Ton/Hr.	8,000	13.3	0.5	13.8	10.7	0.0	0.0	0.0	0.0	8.3	19.0	32.8
122	Planta de Asfalto en frío	M.E. 50	60-115 Ton/Hr.	9,000	28.8	1.0	29.7	23.0	0.0	1.5	0.6	0.2	8.3	33.5	63.2
123	Planta de Asfalto en Caliente (CYBER)		60 Ton/Hr.	32,350	68.1	2.2	70.3	0.0	1,237.5	5.2	2.1	0.0	8.3	1,253.1	1,323.4
124	Planta de Asfalto en Caliente (CIFALLI)		90-120 Ton/Hr.	46,800	65.9	2.1	68.0	0.0	1,987.5	5.2	2.1	0.0	8.3	2,003.1	2,071.1
125	Secador de Aridos	M.E. 70	60-115 Ton/Hr.	8,500	17.5	0.6	18.1	9.3	0.0	6.0	2.4	0.0	8.3	26.0	44.1
126	Pavimentadora sobre oruga	69	10 Pulg.	12,000	31.8	1.1	32.9	21.2	23.3	3.8	1.5	0.0	8.3	58.2	91.1

17,290.6

### 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	4.9	0.4	5.2	3.9	21.6	4.3	1.7	0.2	7.8	39.5	44.7
2		90	2,000 Kg	3,000	6.4	0.5	6.8	5.1	23.0	4.6	1.8	0.3	7.8	42.6	49.4
3	Camioneta Pick-Up 4X4 - C. Simple	107	1,000 Kg	2,450	5.5	0.4	5.9	4.3	27.0	4.3	1.7	0.2	7.8	45.4	51.2
4		90	750 Kg	1,850	5.9	0.4	6.3	4.7	21.6	4.3	1.7	0.3	7.8	40.4	46.7
5	Camioneta Pick-Up 4X2 - C. Doble	118	5 Pas.	1,850	5.6	0.4	6.1	4.5	24.3	4.3	1.7	0.3	7.8	42.9	48.9
6	Camioneta Rural 4X4	135	5 Pas.	1,882	7.5	0.6	8.0	6.0	35.8	4.3	1.7	0.3	7.8	55.8	63.8
7	Camioneta Station Wagon 4x2	100	6 Pas.	1,800	4.7	0.4	5.1	3.8	27.0	4.3	1.7	0.3	7.8	44.9	49.9
8		122	1,500 Gln	9,900	16.0	1.5	17.5	12.0	48.8	4.7	1.9	0.4	7.8	75.4	93.0
9	Cisterna de Agua 4X2	145-165	2,000 Gln	13,000	18.4	1.8	20.1	13.7	50.0	4.7	1.9	0.4	7.8	78.4	98.5
10		178-210	3,000 Gln	19,000	22.6	2.2	24.8	14.1	70.0	7.2	2.9	0.6	7.8	102.5	127.3
11	Cisterna de Combustible 4X2	122	2,000 Gln	13,000	19.3	1.9	21.1	12.0	41.3	4.7	1.9	0.4	7.8	68.0	89.1
12	Cisterna de Asfalto 4X2	178-210	2,000 Gln	13,000	22.1	2.1	24.3	13.8	69.9	7.2	2.9	0.5	7.8	102.1	126.4
13	Concretero 4X2	178-210	4 M <sup>3</sup>	19,000	44.2	4.2	48.5	27.6	69.9	8.9	3.6	0.5	7.8	118.3	166.8
14	Concretero 6X4	300	6 M <sup>3</sup>	26,000	51.0	4.9	55.8	31.8	100.0	10.7	4.3	0.5	7.8	155.1	211.0
15	Dumper 6X4	146-240	12 M <sup>3</sup>	32,200	45.9	4.4	50.3	28.6	48.3	5.0	2.0	1.0	7.8	92.6	142.9
16	Dumper 6x6	146-240	13 M <sup>3</sup>	38,400	54.9	5.3	60.2	34.2	69.9	7.2	2.9	1.5	7.8	123.4	183.7
17	Camión Imprimador 6X2	178-210	1,800 Gln	16,475	22.3	2.1	24.4	13.9	69.9	10.6	4.2	0.2	7.8	106.7	131.1
18		122	8 Ton.	13,000	24.2	2.3	26.5	15.1	32.5	10.5	4.2	0.4	7.8	70.4	96.9
19	Plataforma 4X2	178-210	12 Ton.	19,000	30.6	2.9	33.5	19.1	35.0	10.5	4.2	0.4	7.8	76.9	110.4
20	Plataforma 6X4	300	19 Ton.	26,000	61.2	5.9	67.1	38.2	81.3	17.6	7.0	0.5	7.8	152.4	219.5
21	Semitrayler 6X4	330	35 Ton.	42,600	45.0	4.3	49.3	33.7	97.4	17.8	7.1	0.4	7.8	164.2	213.4
22		330	40 Ton.	54,420	45.9	4.4	50.3	34.4	97.4	17.8	7.1	0.5	7.8	164.9	215.2
23		120-140	4 M <sup>3</sup>	11,500	12.8	1.2	14.0	12.8	60.0	7.2	2.9	0.4	7.8	91.0	105.0
24	Volquete 4X2	140-210	6 M <sup>3</sup>	15,000	17.3	1.7	18.9	17.2	69.9	10.7	4.3	0.5	7.8	110.3	129.2
25		210-280	8 M <sup>3</sup>	19,000	23.8	2.3	26.1	23.7	93.3	14.2	5.7	1.0	7.8	145.7	171.8
26	Volquete 6X4	330	10 M <sup>3</sup>	26,000	24.3	2.4	26.7	24.2	109.9	17.8	7.1	1.0	7.8	167.8	194.5
27	Volquete 6X4	420	15 M <sup>3</sup>	35,454	33.1	3.2	36.3	33.0	133.3	18.0	7.2	0.5	7.8	199.8	236.1

3416.3

### 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	5.6	0.5	6.1	3.8	0.0	0.2	0.1	0.0	0.0	4.0	10.1
2	Faja Transportadora 18"X50'	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
3	Faja Transportadora 30"X40'	M.E. 5 Kw	550 Ton/Hr.	7,800	6.4	0.6	6.9	4.3	0.0	0.2	0.1	0.0	0.0	4.5	11.4
4	Faja Transportadora 30"X50'	M.E. 5 Kw	800 Ton/Hr.	12,000	7.2	0.6	7.8	4.8	0.0	0.2	0.1	0.0	0.0	5.0	12.9
5	Faja Transportadora 30"X60'	M.E. 7 Kw	800 Ton/Hr.	15,000	9.6	0.8	10.4	6.4	0.0	0.2	0.1	0.0	0.0	6.6	17.1
6		38	20 Kw	500	3.5	0.4	3.9	3.3	0.0	0.0	0.0	0.0	0.0	3.3	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	4.5	0.0	0.0	0.0	0.0	0.0	4.5	9.8
9	Grupo Electrónico	116	75 Kw	1,500	5.7	0.6	6.3	5.3	0.0	0.0	0.0	0.0	0.0	5.3	11.6
10		140	90 Kw	1,700	7.2	0.7	7.9	6.7	0.0	0.0	0.0	0.0	0.0	6.7	14.7
11		230	150 Kw	2,000	1										