

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

\* Abril 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	4.1	0.0	4.1	3.2	22.5	2.9	1.2	0.0	8.3	38.1	42.2
2		87	250-330 PCM	2,000	9.7	0.0	9.7	7.6	28.8	2.9	1.2	0.0	8.3	48.7	58.4
3	Compresoras Neumáticas	93	335-375 PCM	2,500	13.2	0.3	13.5	10.3	45.0	3.3	1.3	0.0	8.3	68.2	81.7
4		150	380-590 PCM	3,500	17.9	0.4	18.3	14.0	47.5	4.0	1.6	0.0	8.3	75.4	93.7
5		196	600-690 PCM	5,000	13.8	0.3	14.1	10.8	91.3	6.1	2.4	0.0	8.3	118.9	133.0
6		240	700-800 PCM	6,500	15.3	0.3	15.6	11.9	108.8	7.5	3.0	0.0	8.3	139.6	155.2
7	Martillos Neumáticos	24	Kg	24	3.3	0.0	3.3	2.6	0.0	0.0	0.0	0.0	0.0	2.6	5.9
8		29	Kg	29	4.2	0.1	4.3	3.3	0.0	0.0	0.0	0.0	0.0	3.3	7.6
9	Motoperforadora	1400 RPM	185 CC	26	5.2	0.1	5.2	1.7	0.0	0.0	0.0	0.0	0.0	1.7	6.9
10	Perforadora sobre Orugas		660-690 PCM	6,000	21.2	0.5	21.6	16.9	0.0	0.0	0.0	0.0	0.0	16.9	38.6
<b>Equipos para Movimiento de Tierra</b>															
11	Cargador sobre Oruga	50-79	0.7-1.3 Yd <sup>3</sup>	10,000	20.9	0.5	21.4	14.0	41.3	3.6	1.4	0.0	8.3	68.6	89.9
12		80-105	1.5-1.75 Yd <sup>3</sup>	12,967	24.8	0.5	25.3	16.5	45.0	4.7	1.9	0.0	8.3	76.4	101.7
13		110-135	2.0-2.25 Yd <sup>3</sup>	16,275	42.7	0.9	43.7	28.5	45.0	5.4	2.2	0.0	8.3	89.3	133.0
14		150-180	2.5-2.75 Yd <sup>3</sup>	18,387	52.0	1.1	53.1	34.6	70.0	5.8	2.3	0.0	8.3	121.0	174.1
15		190-225	3.2-3.75 Yd <sup>3</sup>	25,173	92.0	2.0	94.0	36.8	77.5	7.5	3.0	0.0	8.3	133.2	227.1
16		245	4.0-6.0 Yd <sup>3</sup>	28,000	95.7	2.1	97.7	38.3	87.5	7.9	3.2	0.0	8.3	145.2	242.9
17	Cargador Retroexcavador	62	1 Yd <sup>3</sup>	8,000	22.8	0.4	23.2	12.8	38.8	3.7	1.5	0.1	8.3	65.2	88.4
18	Cargador sobre Llantas	80-95	1.5-1.75 Yd <sup>3</sup>	9,031	30.9	0.6	31.4	20.5	25.0	3.3	1.3	1.2	8.3	59.5	91.0
19		100-115	2.0-2.35 Yd <sup>3</sup>	10,308	28.0	0.5	28.5	18.6	35.0	4.3	1.7	1.2	8.3	69.1	97.6
20		100-125	2.50 Yd <sup>3</sup>	11,500	41.4	0.8	42.2	27.5	35.0	5.0	2.0	0.9	8.3	78.7	120.9
21		125-155	3.0 Yd <sup>3</sup>	16,584	41.4	0.8	42.2	27.5	56.3	5.0	2.0	1.0	8.3	100.1	142.2
22		160-195	3.5 Yd <sup>3</sup>	18,585	53.9	1.0	54.9	35.8	60.0	5.4	2.2	1.7	8.3	113.4	168.2
23		200-250	4.0 - 4.1 Yd <sup>3</sup>	20,826	60.2	1.3	61.5	40.0	62.5	6.1	2.4	2.3	8.3	121.6	183.1
24		200-250	4.6 Yd <sup>3</sup>	22,000	62.5	1.4	63.9	41.5	66.3	7.9	3.2	2.3	8.3	129.4	193.2
25		260-300	5.0-5.50 Yd <sup>3</sup>	31,105	86.6	1.9	88.4	57.6	68.8	9.0	3.6	2.3	8.3	149.5	237.9
26		375	8.0 Yd <sup>3</sup>	49,738	125.0	2.7	127.7	83.1	87.5	11.1	4.4	3.1	8.3	197.6	325.2
27		140-200	11.0 Yd <sup>3</sup>	14,200	64.6	1.2	65.8	21.4	66.3	6.2	2.5	2.4	8.3	107.0	172.8
28	210-300	16.0 Yd <sup>3</sup>	20,600	97.6	1.8	99.4	32.4	93.8	9.0	3.6	3.0	8.3	150.0	249.5	
29	Mototrallas Autocargable	310-350	23.0 Yd <sup>3</sup>	32,800	94.7	2.0	96.7	31.5	120.0	10.8	4.3	2.2	8.3	177.0	273.7
30		310-400	14-20 Yd <sup>3</sup>	20,000	92.0	2.0	94.0	30.6	125.0	11.8	4.7	2.3	8.3	182.7	276.7
31		405-480	21-31 Yd <sup>3</sup>	15,500	146.2	3.2	149.4	48.6	165.0	14.3	5.7	3.3	8.3	245.2	394.5
32	Retroexcavadora sobre Llantas	58	1 Yd <sup>3</sup>	9,000	18.8	0.4	19.2	8.2	25.0	2.5	1.0	0.2	8.3	45.3	64.4
33	Retroexcavadora sobre Oruga	80-110	0.50-1.3 Yd <sup>3</sup>	17,300	51.1	0.9	52.1	20.5	41.3	8.7	3.5	0.0	8.3	82.2	134.3
34		115-165	0.75-1.60 Yd <sup>3</sup>	23,400	71.1	1.3	72.4	28.5	62.5	8.8	3.5	0.0	8.3	111.6	184.0
35		170-250	1.10-2.75 Yd <sup>3</sup>	33,800	117.9	2.2	120.1	47.2	87.5	9.9	4.0	0.0	8.3	156.9	277.0
36		325	2.0-3.8 Yd <sup>3</sup>	61,600	197.3	3.6	200.9	78.9	112.5	10.1	4.0	0.0	8.3	213.8	414.7
37	Ripper (Potencia 150 HP)			2,000	3.7	0.1	3.7	2.0	0.0	0.0	0.0	0.0	0.0	2.0	5.8
38	Ripper (Potencia 250 HP)			2,600	6.1	0.1	6.2	3.4	0.0	0.0	0.0	0.0	0.0	3.4	9.6
39	Ripper (Potencia 300 HP)			4,400	10.6	0.2	10.8	5.9	0.0	0.0	0.0	0.0	0.0	5.9	16.7
40	Ripper (Potencia 470 HP)			6,600	13.8	0.3	14.0	7.7	0.0	0.0	0.0	0.0	0.0	7.7	21.7
41	Tractor sobre Orugas	60-70		6,711	21.8	0.4	22.2	11.6	30.0	2.5	1.0	0.0	8.3	53.5	75.7
42		75-100		9,090	33.4	0.6	34.0	17.8	31.3	2.7	1.1	0.0	8.3	61.1	95.1
43		105-135		12,300	47.1	0.9	48.0	25.1	37.5	4.7	1.9	0.0	8.3	77.5	125.5
44		140-160		14,900	41.2	0.8	42.0	22.0	62.5	5.4	2.2	0.0	8.3	100.3	142.3
45		190-240		20,520	79.0	1.7	80.7	42.1	68.8	7.2	2.9	0.0	8.3	129.3	210.0
46		270-295		21,863	76.4	2.0	78.4	40.7	87.5	7.9	3.2	0.0	8.3	147.6	225.9
47		300-330		31,980	76.1	2.0	78.0	50.7	128.8	8.6	3.5	0.0	8.3	199.9	277.9
48		335-410		37,170	83.7	2.2	85.9	55.8	137.5	10.4	4.2	0.0	8.3	216.2	302.1
49		410-470		52,007	114.9	3.0	117.9	61.3	163.8	12.8	5.1	0.0	8.3	251.3	369.2
50		510		54,760	145.5	3.8	149.3	77.6	163.8	14.6	5.8	0.0	8.3	270.1	419.5
51		650		70,320	187.2	4.9	192.1	124.8	206.3	31.5	12.6	0.0	8.3	383.4	575.5
52	Tractor sobre Llantas	200-250		20,500	44.0	0.8	44.8	29.2	102.5	10.6	4.2	2.3	8.3	157.1	201.9
53		300-350		30,380	57.7	1.1	58.8	38.2	148.8	14.2	5.7	4.5	8.3	219.6	278.4
54		400-500		46,355	123.8	2.3	126.1	82.2	150.0	17.7	7.1	4.9	8.3	270.2	396.3
55	Pala Frontal	195	3.0 Yd <sup>3</sup>	38,380	153.2	2.8	156.0	122.5	136.3	7.2	2.9	0.0	8.3	277.2	433.2
<b>Equipos de Compactación</b>															
56	Vibrador de Concreto	4	1.25 Pulg.		2.9	0.0	2.9	1.5	0.0	0.0	0.0	0.0	0.0	1.5	4.4
57		4	1.50 Pulg.		3.0	0.0	3.0	1.6	0.0	0.0	0.0	0.0	0.0	1.6	4.6
58		4	2.40 Pulg.		3.5	0.0	3.6	1.9	0.0	0.0	0.0	0.0	0.0	1.9	5.5
59	Compactador Vibrador Tipo Plancha	4		95	2.0	0.0	2.1	0.9	3.4	0.4	0.2	0.0	8.3	13.1	15.2
60		5.8		145	2.5	0.0	2.5	1.1	3.9	0.8	0.3	0.0	8.3	14.4	16.9
61		7		160	3.8	0.0	3.8	1.2	4.1	1.1	0.5	0.0	8.3	15.2	19.1
62		10.8	0.8 - 1.1 Ton.	800	4.0	0.1	4.0	3.2	5.6	1.8	0.7	0.0	8.3	19.7	23.7
63	Rodillo Liso Vibratorio Autopropulsado	70-100	7-9 Ton.	7,300	16.0	0.3	16.3	8.4	26.3	3.3	1.3	0.8	8.3	48.3	64.6
64		101-135	10-12 Ton.	11,100	17.1	0.3	17.4	9.0	43.8	5.0	2.0	0.8	8.3	68.8	86.2
65		136-170	15-17 Ton.	13,700	20.9	0.4	21.3	11.1	46.3	5.4	2.2	0.8	8.3	73.9	95.2
66	210	19-23 Ton.	19,600	24.0	0.5	24.4	12.7	69.9	7.2	2.9	1.1	8.3	102.1	126.5	
67	Rodillo Liso Vibratorio de Tiro	50-80	4-5.5 Ton.	5,500	6.0	0.1	6.1	3.2	23.8	2.9	1.2	0.0	8.3	39.4	45.5
68	Rodillo Neumático Autopropulsado	60-80	3.0-5.0 Ton.	3,700	12.3	0.3	12.6	4.9	21.3	2.9	1.2	0.2	8.3	38.8	51.4
69		81-100	5.5-20 Ton.	5,500	16.5	0.4	16.8	4.4	25.0	3.3	1.3	0.2	8.3	42.5	59.3
70		127	8.23 Ton.	8,000	12.5	0.3	12.8	6.6	38.8	4.7	1.9	0.2	8.3	60.5	73.2
71		135	9.26 Ton.	9,000	12.8	0.3	13.0	6.8	38.3	4.7	1.9	0.2	8.3	60.1	73.1
72	Pata de Cabra Vibratorio Autopropulsado	84	8.1 Ton.	8,200	9.5	0.2	9.7	7.5	28.3	2.9	1.2	0.7	8.3	48.9	58.6
73		100-135	11-13 Ton.	11,300	16.7	0.4	17.0	8.8	37.9	4.7	1.9	0.7	8.3	62.3	79.3
74		136-180	15-17 Ton.	15,300	17.7	0.4	18.0	11.7	50.6	5.7	2.3				

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

\* Abril 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	19.1	0.6	19.7	9.5	0.0	1.5	0.6	0.1	8.3	20.1	39.8
98	Chancadora Secundaria 36"S	M.E. 75 Kw	46-70 Ton/Hr.	23,000	33.1	1.1	34.2	16.5	0.0	1.5	0.6	0.1	8.3	27.1	61.3
99	Chancadora Primaria-Secundaria (Incluye 5 faja)	M.E. 75 Kw	46-70 Ton/Hr.	39,000	67.1	2.3	69.4	35.8	112.5	1.6	0.6	0.1	8.3	158.9	228.3
100	Chancadora Primaria - Secundaria (Azteca)		40-80 Ton/Hr.		28.7	1.9	30.5	11.5	0.0	0.0	0.0	0.0	9.3	20.8	51.3
101	Chancadora Primaria - Secundaria (Escorpión)		60-120 Ton/Hr.		35.9	2.3	38.2	14.3	0.0	0.0	0.0	0.0	10.3	24.7	62.8
102	Zaranda Vibratoria 4"x6"x14'	M.E. 15 Kw	11 Kw	7,000	9.9	0.3	10.3	6.6	0.0	1.2	0.5	0.1	8.3	16.7	27.0
<b>Equipos para Obras de Concreto</b>															
103		M.E. 40 Kw	50 M³/Hr.	17,000	27.2	0.9	28.1	21.8	0.0	1.8	0.7	0.0	8.3	32.6	60.7
104	Dosificadora de Concreto	M.E. 45 Kw	50-90 M³/Hr.	20,000	32.3	1.1	33.4	25.8	0.0	1.8	0.7	0.0	8.3	36.7	70.1
105		M.E. 60 Kw	120 M³/Hr.	23,000	36.4	1.2	37.6	29.1	0.0	1.8	0.7	0.0	8.3	40.0	77.6
106	Mezcladora de Concreto Tipo Trompo	8 Kw	9 Pie <sup>3</sup>	500	2.9	0.1	2.9	2.0	0.0	0.0	0.0	0.1	0.0	2.2	5.1
107		18 Kw	7 Pie <sup>3</sup>	1,500	7.1	0.2	7.3	5.1	0.0	0.0	0.0	0.1	0.0	5.2	12.5
108	Mezcladora de Concreto Tipo Tambor	23 Kw	11-12 Pie <sup>3</sup>	2,200	11.8	0.3	12.0	8.5	0.0	0.0	0.0	0.1	0.0	8.5	20.6
109		20-35 Kw	16 Pie <sup>3</sup>	2,700	15.1	0.3	15.5	10.9	0.0	0.0	0.0	0.1	0.0	11.0	26.4
<b>Equipos para Refine y Afirmado</b>															
110		65-80		6,000	17.1	0.5	17.5	11.3	27.5	2.9	1.2	0.2	8.3	51.5	69.0
111		85-120		9,100	23.0	0.6	23.6	15.3	40.0	4.6	1.8	0.2	8.3	70.3	93.9
112	Motoniveladora	125		11,515	24.4	0.6	25.0	16.2	53.8	4.7	1.9	0.2	8.3	85.1	110.1
113		130-135		12,365	32.5	0.9	33.4	21.6	53.8	5.0	2.0	0.2	8.3	91.0	124.4
114		145-150		13,540	32.3	0.8	33.1	21.5	62.5	5.8	2.3	0.2	8.3	100.7	133.8
115		180-200		18,370	54.0	1.4	55.5	36.0	68.8	6.2	2.5	0.6	8.3	122.3	177.7
<b>Equipos para Pavimentación</b>															
116	Amasadora de Asfalto	23.5	5.4 M <sup>3</sup>	9,500	27.3	0.5	27.8	21.8	62.5	2.0	0.8	0.1	8.3	95.5	123.2
117	Barredora Mecánica	10-20	7 Pulg. LON	1,000	5.9	0.1	6.0	4.2	12.5	1.3	0.5	0.1	8.3	27.0	33.0
118	Calentador de Aceite 48-S	5	468 P <sup>3</sup>	5,700	10.6	0.2	10.7	6.4	0.0	0.0	0.0	0.0	8.3	14.7	25.4
119	Cocina de Asfalto		320 Gln	2,100	9.3	0.2	9.5	3.4	5.0	1.3	0.5	0.1	8.3	18.6	28.0
120	Planta de Asfalto en frío	M.E. 30	30-60 Ton/Hr.	9,000	20.6	0.7	21.3	16.5	0.0	1.5	0.6	0.2	8.3	27.0	48.3
121	Secador de Aridos	M.E. 50	30-64 Ton/Hr.	8,000	13.7	0.5	14.1	10.9	0.0	0.0	0.0	0.0	8.3	19.2	33.4
122	Planta de Asfalto en frío	M.E. 50	60-115 Ton/Hr.	9,000	29.5	1.0	30.5	23.6	0.0	1.5	0.6	0.2	8.3	34.1	64.5
123	Planta de Asfalto en Caliente (CYBER)		60 Ton/Hr.	32,350	69.8	2.2	72.0	0.0	1,237.5	5.2	2.1	0.0	8.3	1,253.1	1,325.1
124	Planta de Asfalto en Caliente (CIFALLI)		90-120 Ton/Hr.	46,800	67.5	2.1	69.6	0.0	1,987.5	5.2	2.1	0.0	8.3	2,003.1	2,072.7
125	Secador de Aridos	M.E. 70	60-115 Ton/Hr.	8,500	17.9	0.6	18.5	9.5	0.0	6.0	2.4	0.0	8.3	26.3	44.8
126	Pavimentadora sobre oruga	69	10 Pulg.	12,000	32.6	1.1	33.7	21.7	23.3	3.8	1.5	0.0	8.3	58.7	92.4

17,459.5

### 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	5.0	0.4	5.4	4.0	21.6	4.3	1.7	0.2	7.8	39.6	45.0
2		90	2,000 Kg	3,000	6.5	0.5	7.0	5.2	23.0	4.6	1.8	0.3	7.8	42.7	49.7
3	Camioneta Pick-Up 4X4 - C. Simple	107	1,000 Kg	2,450	5.6	0.4	6.0	4.5	27.0	4.3	1.7	0.2	7.8	45.5	51.5
4		90	750 Kg	1,850	6.1	0.4	6.5	4.8	21.6	4.3	1.7	0.3	7.8	40.5	47.0
5	Camioneta Pick-Up 4X2 - C. Doble	118	5 Pas.	1,850	5.8	0.4	6.2	4.6	24.3	4.3	1.7	0.3	7.8	43.0	49.2
6	Camioneta Rural 4X4	135	5 Pas.	1,882	7.7	0.6	8.2	6.1	35.8	4.3	1.7	0.3	7.8	56.0	64.2
7	Camioneta Station Wagon 4x2	100	6 Pas.	1,800	4.9	0.4	5.2	3.9	27.0	4.3	1.7	0.3	7.8	44.9	50.2
8		122	1,500 Gln	9,900	16.4	1.6	18.0	12.3	48.8	4.7	1.9	0.4	7.8	75.7	93.7
9	Cisterna de Agua 4X2	145-165	2,000 Gln	13,000	18.8	1.8	20.6	14.1	50.0	4.7	1.9	0.4	7.8	78.8	99.4
10		178-210	3,000 Gln	19,000	23.2	2.2	25.4	14.4	70.0	7.2	2.9	0.6	7.8	102.9	128.2
11	Cisterna de Combustible 4X2	122	2,000 Gln	13,000	19.7	1.9	21.6	12.3	41.3	4.7	1.9	0.4	7.8	68.2	89.9
12	Cisterna de Asfalto 4X2	178-210	2,000 Gln	13,000	22.7	2.2	24.9	14.1	69.9	7.2	2.9	0.5	7.8	102.4	127.3
13	Concretero 4X2	178-210	4 M <sup>3</sup>	19,000	45.3	4.4	49.7	28.3	69.9	8.9	3.6	0.5	7.8	119.0	168.6
14	Concretero 6X4	300	6 M <sup>3</sup>	26,000	52.2	5.0	57.2	32.6	100.0	10.7	4.3	0.5	7.8	155.9	213.1
15	Dumper 6X4	146-240	12 M <sup>3</sup>	32,200	47.0	4.5	51.5	29.3	48.3	5.0	2.0	1.0	7.8	93.3	144.8
16	Dumper 6x6	146-240	13 M <sup>3</sup>	38,400	56.3	5.4	61.7	35.0	69.9	7.2	2.9	1.5	7.8	124.3	186.0
17	Camión Imprimador 6X2	178-210	1,800 Gln	16,475	22.8	2.2	25.0	14.2	69.9	10.6	4.2	0.2	7.8	107.0	132.0
18		122	8 Ton.	13,000	24.7	2.4	27.1	15.4	32.5	10.5	4.2	0.4	7.8	70.8	97.9
19	Plataforma 4X2	178-210	12 Ton.	19,000	31.3	3.0	34.3	19.5	35.0	10.5	4.2	0.4	7.8	77.4	111.7
20	Plataforma 6X4	300	19 Ton.	26,000	62.7	6.0	68.7	39.1	81.3	17.6	7.0	0.5	7.8	153.3	222.0
21	Semitrayler 6X4	330	35 Ton.	42,600	46.1	4.4	50.5	34.5	97.4	17.8	7.1	0.4	7.8	165.0	215.4
22		330	40 Ton.	54,420	47.0	4.5	51.5	35.2	97.4	17.8	7.1	0.5	7.8	165.8	217.3
23		120-140	4 M <sup>3</sup>	11,500	13.1	1.3	14.4	13.1	60.0	7.2	2.9	0.4	7.8	91.3	105.7
24	Volquete 4X2	140-210	6 M <sup>3</sup>	15,000	17.7	1.7	19.4	17.6	69.9	10.7	4.3	0.5	7.8	110.7	130.1
25		210-280	8 M <sup>3</sup>	19,000	24.4	2.4	26.7	24.3	93.3	14.2	5.7	1.0	7.8	146.2	173.0
26	Volquete 6X4	330	10 M <sup>3</sup>	26,000	24.9	2.4	27.3	24.8	109.9	17.8	7.1	1.0	7.8	168.4	195.7
27	Volquete 6X4	420	15 M <sup>3</sup>	35,454	33.9	3.3	37.2	33.9	133.3	18.0	7.2	0.5	7.8	200.6	237.8

3446.1

### 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 Kw	150 Ton/Hr.	4,000	5.8	0.5	6.3	3.8	0.0	0.2	0.1	0.0	0.0	4.1	10.4
2	Faja Transportadora 18"X50'	M.E. 3 Kw	150 Ton/Hr.	4,000	6.2	0.5	6.8	4.1	0.0	0.2	0.1	0.0	0.0	4.4	11.2
3	Faja Transportadora 30"X40'	M.E. 5 Kw	550 Ton/Hr.	7,800	6.5	0.6	7.1	4.4	0.0	0.2	0.1	0.0	0.0	4.6	11.7
4	Faja Transportadora 30"X50'	M.E. 5 Kw	800 Ton/Hr.	12,000	7.4	0.7	8.0	4.9	0.0	0.2	0.1	0.0	0.0	5.2	13.2
5	Faja Transportadora 30"X60'	M.E. 7 Kw	800 Ton/Hr.	15,000	9.8	0.9	10.7	6.5	0.0	0.2	0.1	0.0	0.0	6.8	17.5
6		38	20 Kw	500	3.6	0.4	4.0	3.3	0.0	0.0	0.0	0.0	0.0	3.3	7.3
7		56	37.5 Kw	720	4.1	0.4	4.5	3.8	0.0	0.0	0.0	0.0	0.0	3.8	8.3
8		89	50 Kw	1,150	4.9	0.5	5.4	4.6	0.0	0.0	0.0	0.0	0.0	4.6	10.0
9		116	75 Kw	1,500	5.8	0.6	6.4	5.4	0.0	0.0	0.0	0.0	0.0	5.4	11.9
10		140	90 Kw	1,700	7.4	0.8	8.1	6.9	0.0	0.0	0.0	0.0	0.0	6.9	15.0
11		230	15												