

TAMBÉM COMERCIALIZAMOS TODA LINHA  
DE PLÁSTICOS INDUSTRIAIS

Teflon

Nylon

Acrílico

Celoron

PVC



# SOLUÇÕES

AÇOS E CONEXÕES LTDA  
Troque seus problemas por " SOLUÇÕES "



SOLUÇÕES AÇOS E CONEXÕES LTDA  
Troque seus problemas por " SOLUÇÕES "

**Fone / Fax: (11) 6194-3959**

Rua Luis Pinto, 213 - Vila Carrão - São Paulo - SP - CEP: 03427-000  
E-mail: vendas@acossolucoes.com.br - Site: www.acossolucoes.com.br

## TABELA DE PESOS E MEDIDAS

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# SOLUÇÕES

## AÇOS E CONEXÕES LTDA

• **Chapas:**

[Grossa - Fina Frio - Fina Quente](#)

• **Vigas:** [I - U - H](#)

• **Cantoneiras:** [Abas iguais e desiguais](#)

• **Barra Chata:** [1020 - A-36 - 1045 - 5160](#)

• **Tubos:** [Redondos - Quadrados - Retangulares - SCH-40 a 160](#)

• **Secção de Oxigênio:** [1010 à 1060 até 12"](#)

• **Aços Cromo níquel para cementação e beneficiamento:**

[4140 - 4320 - 4340 - 8620 - 8640 - 5160](#)

• **Aços Redondos:** [Laminados - Trefilados - Forjados](#)

• **Quadrados / Sextavados:** [Trefilados e Laminados](#)

• **Aços Ferramentas:** [VC-130/131 - VND - VPCW - H-13](#)

• **Aços inoxidáveis:** [304 - 310 - 316 - 316-L](#)

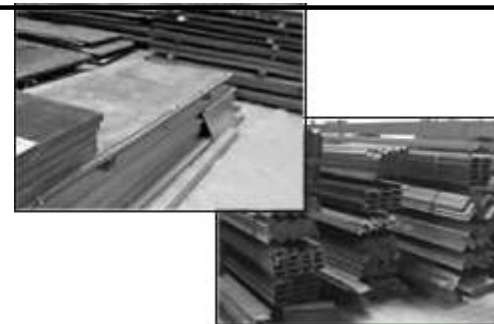
• **Bronze, Latão, Cobre e Alumínio**

• **Plásticos Industriais:** [Teflon, Nylon, Acrílico, Celeron e PVC](#)

• **Válvulas:** [Esfera, Gaveta, Borboleta, Retenção e Globo](#)

• **Flanges de aço inox e aço carbono**

• **Conexões:** Tee - Caps - Curvas - Linha A-234 e Toda a linha Tupy



Por suas características especiais, não fizemos constar nesta tabela os pesos dos materiais abaixo.

- Anodos de Cobre
- Bobinas de Alumínio, Cobre e Latão em medidas e especiais
- Bobinas de Cobre para calhas
- Cobre cromo
- Tarugos e Buchas de bronze grafitados
- Telas de Alumínio
- Tubos de Cobre para refrigeração
- Tubos trefilados em medidas especiais (sob encomenda)
- Verguinhas de Latão e Estanhos para solda

**O maior e mais Variado estoque  
de metais não-ferrosos**

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### PESO DE AÇO EM BARRAS POR METRO LINEAR EM KG

Ø Pol	Ømm	●	■	▲	Ø Pol	Ømm	●	■	▲
3/16	4,76	0,14			3	76,20	35,77	45,54	39,43
1/4	6,35	0,25	0,32	0,27	3	79,38	38,81	49,41	42,79
5/16	7,94	0,39	0,49	0,43	3	82,55	41,88	53,44	46,34
3/8	9,53	0,56	0,71	0,62	3	85,73	45,27	57,63	49,98
7/16	11,11	0,76	0,97	0,84	3	88,90	48,68	61,98	53,74
1/2	12,70	0,99	1,22	1,10	3	92,08	52,22	66,49	57,66
9/16	14,29	1,26	1,60	1,39	3	95,25	55,88	71,15	61,69
5/8	15,87	1,55	1,98	1,71	3	98,43	60,67	75,98	65,88
11/16	17,46	1,88	2,39	2,07	4	101,60	63,58	80,96	
3/4	19,05	2,24	2,85	2,46	4	104,78	67,62	86,10	
13/16	20,64	2,62	3,34	2,89	4	107,95	71,78	91,39	
7/8	22,22	3,04	3,87	3,35	4	111,13	76,06	96,85	
15/16	23,81	3,49	4,45	3,85	4	114,30	80,47	102,46	
1	25,40	3,97	5,06	4,38	4	117,48	85,01	108,23	
1 1/16	26,99	4,49	5,71	4,95	4	120,65	89,66	114,16	
1 1/8	28,57	5,03	6,40	5,55	4	123,83	94,44	120,25	
1 3/16	30,16	5,60	7,14	6,18	5	127,00	99,8	126,5	
1 1/4	31,75	6,21	7,91	6,85	5	130,17	105,2	132,9	
1 5/16	33,34	6,85	8,72	7,55	5	133,35	110,7	139,5	
1 3/8	34,92	7,51	9,57	8,29	5	136,52	116,3	146,2	
1 7/16	36,51	8,21	10,46	9,06	6	140,00	122,1	153,1	
1 1/2	38,10	8,94	11,39	9,86	6	143,17	128,1	160,2	
1 9/16	39,69	9,70	12,35	10,70	6	146,35	134,2	167,5	
1 5/8	41,27	10,49	13,36	11,57	6	149,52	140,4	174,9	
1 11/16	42,86	11,32	14,41	12,48	7	152,70	146,7	182,4	
1 3/4	44,45	12,21	15,50	13,42	7	155,87	153,1	190,0	
1 13/16	46,04	13,06	16,62	14,40	7	159,05	159,6	197,7	
1 7/8	47,62	13,97	17,79	15,41	7	162,22	166,2	205,5	
1 15/16	49,21	14,92	18,99	16,45	8	165,40	172,9	213,4	
2	50,80	15,90	20,24	17,53	8	168,57	179,7	221,4	
2 1/16	52,39	16,91	21,52	18,64	8	171,75	186,6	229,5	
2 1/8	53,97	17,95	22,85	19,79	8	174,92	193,6	237,7	
2 3/16	55,56	19,02	24,21	20,97	9	178,10	200,7	246,0	
2 1/4	57,15	20,12	25,62	22,19	9	181,27	207,9	254,4	
2 5/16	58,74	21,25	27,06	23,44	9	184,45	215,2	262,9	
2 3/8	60,32	22,42	28,54	24,72	9	187,62	222,6	271,5	
2 7/16	61,91	23,61	30,06	26,03	10	190,80	230,1	280,2	
2 1/2	63,50	24,84	31,63	27,38	10	193,97	237,7	289,0	
2 9/16	65,09	26,10	33,22	28,78	10	197,15	245,4	297,9	
2 5/8	66,67	27,38	34,87	30,19	10	200,32	253,2	307,0	
2 11/16	68,26	28,70	36,55	31,67	11	203,50	261,1	316,3	
2 3/4	69,85	30,05	38,27	33,14	11	206,67	269,2	325,8	
2 13/16	71,44	31,44	40,02	34,62	11	209,85	277,4	335,4	
2 7/8	73,02	32,85	41,82	36,11	11	213,02	285,7	345,1	
2 15/16	74,61	34,29	43,66	37,61	12	216,20	294,1	355,0	

### FERRO FUNDIDO

Ømm	Kg/m	Ømm	Kg/m	Ømm	Kg/m	Ømm	Kg/m
20	2,64	75	33,39	140	115,38	250	351,90
25	4,02	80	37,85	150	132,54	260	395,00
30	5,69	85	42,57	160	152,14	270	416,82
35	7,59	90	47,44	170	170,36	280	457,92
40	9,74	95	53,15	180	188,25	290	490,82
45	12,73	100	60,18	190	208,24	300	524,91
50	15,08	105	65,97	200	239,70	320	603,00
55	18,50	110	72,10	210	264,29	340	680,00
60	21,64	115	78,21	220	289,71	360	761,00
65	25,10	120	85,61	230	298,50	380	847,00
70	28,91	130	99,60	240	324,60	400	937,00

### Para Transformar:

De	Para	Multiplicar Pelo Fator
Polegada	Milímetro	25,4
Milímetro	Polegada	0,0394
Pés	Metro	0,3048
Metro	Pés	3,2808
Metro	Jardas	1,0936
Jardas	Metro	0,9144
Milhas	Quilometro	1,6093
Quiilometro	Milhas	0,6214
Centímetro <sup>2</sup>	Polegada <sup>2</sup>	0,1550
Polegada <sup>2</sup>	Centímetro <sup>2</sup>	6,45
Metros <sup>2</sup>	Pés <sup>2</sup>	10,76
Pés <sup>2</sup>	Metros <sup>2</sup>	0,0929
Quilometro <sup>2</sup>	Milhas <sup>2</sup>	0,3861
Milhas <sup>2</sup>	Quilometro <sup>2</sup>	2,59
Polegadas <sup>2</sup>	Centímetro <sup>2</sup>	16,4
Centímetro <sup>2</sup>	Polegada <sup>2</sup>	0,0610
Polegada <sup>2</sup>	Litro	0,0164
Litro	Galão	0,2199
Galão	Litro	4,5459
Metros <sup>3</sup>	Pés <sup>3</sup>	35,2148
Pés <sup>3</sup>	Metros <sup>3</sup>	0,0283
Atmosfera	Kg/cm <sup>3</sup>	1,033
Kg/cm <sup>3</sup>	Atmosfera	0,968
BTU	Caloria	0,252
Caloria	BTU	3,968
Gramma	Onça	0,03527
Onça	Gramma	28,35
Quilograma	Libra	2,2046
Libra	Quilograma	0,4536
Nó	Km/Hora	1,8532
Km/Hora	Nó	0,5396
Milha/Hora	Km/Hora	1,6092
Km/Hora	Milha/Hora	0,625
Cavalo Vapor	Horse Power	0,9863
Horse Power	Cavalo Vapor	1,0139

### Pesos e Medidas

#### Conversões

1 grão	0,0648g	1 libra por pé	1,4882 kg por metro
1 quilate (em geral: 5 quilates - 1g)	0,205g	1 libra por jarda	0,4961 kg por metro
1 onça-troy	31,104g	1 libra por pol"	0,0703 kg por metro <sup>2</sup>
1 libra (lb) (1 pound)	453,6	1 libra por pé	4,8825 kg por metro <sup>2</sup>
1 CWT (ingl.) 1.2 lbs	50,80kg	1 quilo por metro <sup>2</sup>	0,6720 lbs por pés <sup>2</sup>
1 CWT (EE.UU.) 100 lbs	45,36kg	1 quilo por mm <sup>2</sup>	1,422,32 lbs por pol"
1 net ton (2000lbs)	907,2kg	1 quilo por cm <sup>2</sup>	14,2232 lbs por pol"
1 gross ton (2400 lbs)	1016kg	1 quilo por m <sup>2</sup>	0,2048 lbs por pés <sup>2</sup>
1 quilo	2,2046lbs	1 quilo por m <sup>2</sup>	1,8433 lbs por jarda <sup>2</sup>
100 quilos	220,460lbs	1 picul (China)	60,453 kg
1 metr ton (1000kg)	2204,6lbs	1 pood (Rússia)	16,380 kg
1 metr ton (1000kg)	0,9842	1 libra (Rússia)	409,500g
1 barnl	158,984 l	1 galão (EE.UU.)	3,785l
1 barnl	42 galões americanos	1 galão (Inglaterra)	4,54l
1 polegada	25,40mm	1 barril (EE.UU.)	158,98l
1 pés (12 pol)	30,48cm	1 bushel (EE.UU.)	35,23l
1 jarda (3 pés)	91,44cm	1 acre (Inglaterra e EE.UU.)	4047m <sup>2</sup>
1 milha (1760jardas)	1,6093km	1 milha <sup>2</sup>	2,95 km <sup>2</sup>
1 milha marítima	1,853km	1 lb	10,000m <sup>2</sup>
1 milímetro	0,03937pol	1 Km (japão)	0,600 Kg
1 centímetro	0,3937pol	H.P.	1,014 C.V.
1 metro	39,37pol - 32808 pés	7 00	3,141592
1 quilometro	0,62127 milhas		
1 quilometro	1,093,6 jardas		
1 polegada <sup>2</sup>	6,4516 cm <sup>2</sup>	1 palmo	22 cm
1 polegada <sup>2</sup>	645,16m <sup>2</sup>	1 arroba	14,688kg
1 pés <sup>2</sup>	0,0929m <sup>2</sup>	1 quilibal	58,328 kg
1 jarda <sup>2</sup>	0,0836m <sup>2</sup>	1 alqueire paulista	48,400m <sup>2</sup>
1 milímetro <sup>2</sup>	0,00155 pol <sup>2</sup>	1 alqueire do norte	27,255m <sup>2</sup>
1 centímetro <sup>2</sup>	0,155 pol <sup>2</sup>	1 alqueire paulista	24,200m <sup>2</sup>
1 metro <sup>2</sup>	10,7639 pés <sup>2</sup>	1 légua sesmária	6,600m
1 metro <sup>2</sup>	1,196jardas <sup>2</sup>	1 légua marítima	5.555,55m

#### Pesos e Medidas Brasileiras

#### Medidas de Superfície mais usadas no Brasil

Medidas	Dimensões em metros	Superfície em m <sup>2</sup>	Hectares
Metro quadrado	1x1	1	-
Braço quadrado	2,20x2,20	4,84	-
Hectare	100x100	10.000	1,00
Palmo de sesmaria	0,22x6,600	1,452	-
Braço de sesmaria	2,20x6,600	14,500	1,45
Quadra quadrada	132x132	17424	1,74
Alqueire	100x220	871,200	87,12
Quadra sesmaria	132x6,600	871,200	87,12
Milhas	1.000x1.000	1.000.000	100,00
Data de campo	1.650x1.650	2.722.500	272,25
Data de mato	1.650x3.300	5.445.000	544,50
Sesmaria de mato	1.650x6.600	10.890.000	1.089,00
Légua de sesmaria	1.650x6.600	43.560.000	4.356,00
Sesmaria de campo	6.600x19.800	130.680.000	13.068,00



## TUBOS REDONDOS

Bitolas		Espessura da Parede		Kg/ Barra 6m		Bitolas		Espessura da Parede		Kg/ Barra 6m		Bitolas		Espessura da Parede		Kg/ Barra 6m	
mm	Polegadas	mm	mm	mm	mm	mm	Polegadas	mm	mm	mm	mm	mm	Polegadas	mm	mm	mm	mm
9,52	3/8	1,00	1,20	1,280	1,476	28,60	1 1/8	1,00	1,20	4,086	4,866	50,80	2	1,00	1,20	10,944	13,746
		1,50	1,90	2,040	2,484			1,50	1,90	6,012	7,506			1,50	1,90	16,164	19,964
12,70	1/2	0,90	1,00	1,572	1,734	31,75	1 1/4	1,00	1,20	4,548	5,424	57,15	2 1/4	1,50	1,90	12,350	15,532
		1,20	1,50	2,040	2,484			1,50	1,90	6,714	8,394			1,90	2,65	21,369	26,856
15,87	5/8	0,90	1,00	1,992	2,002			1,90	2,25	9,822	11,412	60,32	2 3/8	1,50	1,90	13,054	16,578
		1,20	1,50	2,604	3,192			3,00	3,00	12,762	15,582			3,00	3,00	24,216	30,496
19,05	3/4	0,90	1,00	2,418	2,870	34,92	1 3/8	1,20	1,50	5,980	7,416	63,50	2 1/2	1,50	1,90	13,764	17,316
		1,20	1,50	3,168	3,894			1,90	2,25	9,282	11,412			1,90	2,25	17,316	21,369
20,63	13/16	1,50	1,50	4,245	4,824			3,00	3,00	12,762	15,582	69,85	2 3/4	1,90	1,90	19,102	24,618
														1,90	2,25	24,618	30,496
22,22	7/8	0,90	1,00	2,838	3,138	38,10	1 1/2	1,00	1,20	5,490	6,552	76,20	3	1,50	1,90	16,578	20,886
		1,20	1,50	3,732	4,596			1,50	1,90	7,114	8,794			1,90	2,25	20,886	26,856
		1,50	1,90	4,596	5,712			2,25	2,65	12,226	15,582			3,00	3,00	32,496	40,950
25,40	1	1,00	1,20	3,612	4,296	41,27	1 5/8	1,50	1,50	6,432	7,680	88,90	3 1/2	1,50	1,90	19,398	24,618
		1,50	1,90	4,824	5,304			1,90	2,25	9,282	11,412			1,90	2,25	24,618	30,496
		1,90	2,25	6,060	7,110			2,65	3,00	12,762	15,582	101,60	4	1,50	1,90	28,032	35,430
		2,25	2,65	7,110	8,922			3,00	3,00	15,582	19,398			3,00	3,00	43,770	55,044

## TUBOS RETANGULARES

30,00x20,00		40,00x30,00		60,00x50,00	
1,20	1,50	1,50	1,90	1,50	1,90
5,424	6,714	9,534	11,964	15,168	18,856
6,714	8,394	11,964	15,168	18,856	23,816
8,394	10,668	15,168	19,912	25,376	32,496
10,668	13,464	19,912	25,376	32,496	40,950
13,464	16,944	25,376	32,496	40,950	51,816
16,944	21,369	32,496	40,950	51,816	65,784
21,369	26,856	40,950	51,816	65,784	83,976
26,856	33,816	51,816	65,784	83,976	107,736
33,816	42,496	65,784	83,976	107,736	138,912
42,496	53,064	83,976	107,736	138,912	178,944
53,064	66,616	107,736	138,912	178,944	229,416
66,616	83,264	138,912	178,944	229,416	293,232
83,264	104,112	178,944	229,416	293,232	373,776
104,112	130,368	229,416	293,232	373,776	475,296
130,368	163,152	293,232	373,776	475,296	602,496
163,152	203,664	373,776	475,296	602,496	760,224
203,664	253,000	475,296	602,496	760,224	953,760
253,000	313,356	602,496	760,224	953,760	1200,000
313,356	385,836	760,224	953,760	1200,000	1526,400
385,836	472,544	953,760	1200,000	1526,400	1956,000
472,544	575,584	1200,000	1526,400	1956,000	2505,600
575,584	696,064	1526,400	1956,000	2505,600	3201,600
696,064	835,136	1956,000	2505,600	3201,600	4070,400
835,136	993,800	2505,600	3201,600	4070,400	5136,000
993,800	1173,168	3201,600	4070,400	5136,000	6422,400
1173,168	1385,344	4070,400	5136,000	6422,400	7963,200
1385,344	1641,432	5136,000	6422,400	7963,200	9792,000
1641,432	1953,536	6422,400	7963,200	9792,000	12057,600
1953,536	2332,664	7963,200	9792,000	12057,600	15014,400
2332,664	2790,816	9792,000	12057,600	15014,400	18825,600
2790,816	3340,000	12057,600	15014,400	18825,600	23553,600
3340,000	3983,328	15014,400	18825,600	23553,600	29251,200
3983,328	4733,800	18825,600	23553,600	29251,200	36072,000
4733,800	5604,512	23553,600	29251,200	36072,000	44169,600
5604,512	6609,464	29251,200	36072,000	44169,600	53707,200
6609,464	7762,664	36072,000	44169,600	53707,200	64848,000
7762,664	9078,112	44169,600	53707,200	64848,000	77760,000
9078,112	10569,808	53707,200	64848,000	77760,000	92688,000
10569,808	12250,752	64848,000	77760,000	92688,000	109920,000
12250,752	14134,048	77760,000	92688,000	109920,000	128736,000
14134,048	16232,688	92688,000	109920,000	128736,000	149328,000
16232,688	18559,680	109920,000	128736,000	149328,000	171904,000
18559,680	21127,120	128736,000	149328,000	171904,000	196680,000
21127,120	23947,008	149328,000	171904,000	196680,000	223872,000
23947,008	27032,448	171904,000	196680,000	223872,000	253704,000
27032,448	30496,448	196680,000	223872,000	253704,000	286416,000
30496,448	34352,000	223872,000	253704,000	286416,000	322224,000
34352,000	38612,208	253704,000	286416,000	322224,000	360464,000
38612,208	43290,064	286416,000	322224,000	360464,000	401472,000
43290,064	48408,272	322224,000	360464,000	401472,000	445584,000
48408,272	53979,832	360464,000	401472,000	445584,000	493120,000
53979,832	59997,840	401472,000	445584,000	493120,000	544416,000
59997,840	66475,300	445584,000	493120,000	544416,000	599712,000
66475,300	73425,312	493120,000	544416,000	599712,000	659376,000
73425,312	80860,880	544416,000	599712,000	659376,000	723840,000
80860,880	88795,008	599712,000	659376,000	723840,000	793440,000
88795,008	97240,688	659376,000	723840,000	793440,000	868416,000
97240,688	106210,912	723840,000	793440,000	868416,000	948960,000
106210,912	115718,688	793440,000	868416,000	948960,000	1035360,000
115718,688	125777,008	868416,000	948960,000	1035360,000	1127712,000
125777,008	136398,872	948960,000	1035360,000	1127712,000	1226400,000
136398,872	147597,280	1035360,000	1127712,000	1226400,000	1331840,000
147597,280	159385,328	1127712,000	1226400,000	1331840,000	1444384,000
159385,328	171775,024	1226400,000	1331840,000	1444384,000	1564368,000
171775,024	184779,360	1331840,000	1444384,000	1564368,000	1692192,000
184779,360	198411,440	1444384,000	1564384,000	1692192,000	1828288,000
198411,440	212685,264	1564384,000	1692192,000	1828288,000	1973088,000
212685,264	227614,832	1692192,000	1828288,000	1973088,000	2126944,000
227614,832	243214,240	1828288,000	1973088,000	2126944,000	2290288,000
243214,240	259498,480	1973088,000	2126944,000	2290288,000	2463568,000
259498,480	276481,648	2126944,000	2290288,000	2463568,000	2647248,000
276481,648	294178,736	2290288,000	2463568,000	2647248,000	2841776,000
294178,736	312604,736	2463568,000	2647248,000	2841776,000	3047616,000
312604,736	331784,736	2647248,000	2841776,000	3047616,000	3265344,000
331784,736	351732,736	2841776,000	3047616,000	3265344,000	3495424,000
351732,736	372462,736	3047616,000	3265344,000	3495424,000	3738400,000
372462,736	393988,736	3265344,000	3495424,000	3738400,000	3994720,000
393988,736	416324,736	3495424,000	3738400,000	3994720,000	4264736,000
416324,736	439484,736	3738400,000	3994720,000	4264736,000	4548800,000
439484,736	463482,736	3994720,000	4264736,000	4548800,000	4847264,000
463482,736	488332,736	4264736,000	4548800,000	4847264,000	5160576,000
488332,736	514048,736	4548800,000	4847264,000	5160576,000	5488176,000
514048,736	540644,736	4847264,000	5160576,000	5488176,000	5830624,000
540644,736	568136,736	5160576,000	5488176,000	5830624,000	6188480,000
568136,736	596538,736	5488176,000	5830624,000	6188480,000	6562224,000
596538,736	625864,736	5830624,000	6188480,000	6562224,000	6952416,000
625864,736	656128,736	6188480,000	6562224,000	6952416,000	7359504,000
656128,736	687344,736	6562224,000	6952416,000	7359504,000	7783040,000
687344,736	719528,736	6952416,000	7359504,000	7783040,000	8223584,000
719528,736	752684,736	7359504,000	7783040,000	8223584,000	8681600,000
752684,736	786828,736	7783040,000	8223584,000	8681600,000	9157632,000
786828,736	821976,736	8223584,000	8681600,000	9157632,000	9661184,000
821976,736	858134,736	8681600,000	9157632,000	9661184,000	10192832,000
858134,736	895308,736	9157632,000	9661184,000	10192832,000	10752000,000
895308,736	933504,736	9661184,000	10192832,000	10752000,000	11339104,000
933504,736	972728,736	10192832,000	10752000,000	11339104,000	11953696,000

# Dados físico-químicos de alguns elementos



Símbolo	Metal	Densidade g/cm³	Peso Atômico	Temp. de Fusão °C	Símbolo	Metal	Densidade g/cm³	Peso Atômico	Temp. de Fusão °C
Al	Alumínio	2,70	26,90	660	Nd	Neodímio	7,05	144,27	840
Ag	Prata	10,50	107,88	960	Ni	Níquel	8,90	58,69	2,455
As	Arsênico	5,70	74,91	818	Os	Ósmio	22,48	190,02	2,500
Au	Ouro	19,30	197,20	1,063	P	Fósforo	2,20	30,98	590
B	Boro	2,30	10,80	2,318	Pb	Chumbo	11,34	207,21	327
Ba	Bário	3,59	137,36	710	Pb	Poládio	12,02	106,70	1,554
Bi	Bismuto	9,80	209,00	271	Pr	Praseodímio	6,77	140,92	932
C	Carbono	2,25	12,01	-	Pt	Platina	21,44	195,23	1,773
Cd	Cádmio	8,64	112,41	302	Re	Rênio	20,99	186,31	3,170
Ce	Cério	6,78	140,13	815	Rh	Ródio	12,41	102,91	1,966
Co	Cobalto	8,70	58,94	1,478	Ru	Rutênio	12,43	101,70	1,950
Cr	Cromo	7,18	52,01	1,920	Sb	Antimônio	6,68	121,76	630
Cu	Cobre	8,93	63,57	1,083	Se	Selênio	4,26	78,96	220
Fe	Ferro	7,88	55,85	1,535	Si	Silício	2,32	28,06	1,414
Ga	Gálio	5,93	96,72	29	Sn	Estanho	7,28	118,70	232
Ge	Germânio	5,32	72,60	958,5	Ta	Tântalo	16,65	180,88	3,030
Hf	Háfnio	13,30	178,60	2,230	Te	Telúrio	6,24	127,61	452
Hg	Mercúrio	13,69	200,61	(-38)	Th	Tório	11,70	232,12	1,827
In	Índio	7,29	114,76	15	Ti	Titânio	4,54	47,90	1,820
Ir	Írídio	22,64	193,10	2,554	Tl	Tálio	11,84	204,39	303
La	Latânio	6,19	138,92	885	U	Urânio	18,70	238,07	1,130
Mg	Magnésio	1,70	24,32	650	V	Vanádio	6,07	50,95	1,700
Mn	Manganês	7,46	54,93	1,244	W	Tungstênio	19,26	183,92	3,380
Mo	Molibdênio	10,21	95,95	2,600	Zn	Zinco	7,14	65,38	419
Nd	Nióbio	8,56	93,50	2,415	Zr	Zircônio	6,49	91,22	2,130

# Pesos e Medidas de Tubos e chapas



DIN-2440					TUBOS CALDEIRA			
pol.	Ø ext	Ø int	parede	Kg/m	pol.	Ø ent	parede	Kg/m
1/4"	13,5	8,8	2,35	0,66	1"	25,4	2,6	1,440
3/8"	17,2	12,5	2,35	0,86	1"	25,4	3,2	1,720
1/2"	21,3	16,0	2,65	1,26	11/4"	31,8	2,6	1,880
3/4"	26,9	21,6	2,65	1,59	11/4"	31,8	3,2	2,270
1"	33,7	27,2	3,25	2,50	11/2"	38,10	2,6	2,290
11/4"	42,4	35,9	3,25	3,17	11/2"	38,10	3,2	2,770
11/2"	48,3	41,8	3,25	3,65	13/4"	44,5	2,6	2,700
2"	60,3	53,0	3,65	5,17	13/4"	44,5	3,2	3,280
21/2"	76,1	68,8	3,65	6,63	2"	50,8	2,6	3,120
3"	88,9	80,8	4,05	8,69	2"	50,8	3,2	3,790
4"	114,3	105,3	4,50	12,10	21/2"	63,5	2,9	4,360
5"	139,7	130,0	4,85	16,70	21/2"	63,5	3,6	5,360
6"	165,1	155,4	4,85	19,80	3"	76,2	2,9	5,280
8"	219,1	206,5	6,30	31,20	3"	76,2	3,6	6,490
					4"	101,6	4,0	9,700
					4"	101,6	4,5	10,700

ELETRODUTOS GALVANIZADOS		
pol.	mm	mm
1/2	21,34	2,65
3/4	26,67	2,65
1	33,40	3,00
11/4	42,16	3,00
11/2	48,26	3,35
2	60,33	3,35
21/2	76,10	3,75
3	88,90	3,75
4	114,30	4,50
5	139,70	4,85
6	165,70	4,85

CHAPAS FINAS A FRIO			CHAPAS FINAS A QUENTE			CHAPAS GALVANIZADAS		
Bitola MSG	Espessura mm	Peso Kg/m²	Bitola MSG	Espessura mm	Peso Kg/m²	Bitola MSG	Espessura mm	Peso Kg/m²
16	1,52	12,206	3/16	4,76	37,348	12	2,70	22,123
17	1,37	10,985	7	4,55	36,618	14	1,95	16,020
18	1,21	9,765	8	4,18	33,566	16	1,55	12,969
19	1,06	8,544	9	3,80	30,515	18	1,30	10,528
20	0,91	7,324	10	3,42	27,464	20	0,95	8,086
21	0,84	6,713	11	3,04	24,412	22	0,80	6,866
22	0,76	6,103	12	2,66	21,360	24	0,65	5,645
23	0,68	5,493	13	2,28	18,309	26	0,50	4,425
24	0,61	4,882	14	1,90	15,258	28	0,43	3,814
25	0,53	4,272	15	1,71	13,732	30	0,35	3,204
26	0,46	3,662	16	1,52	12,206			
27	0,42	3,357						
28	0,38	3,052						
29	0,34	2,746						
30	0,31	2,441						

CHAPAS GROSSAS PLACAS		
Espessuras		
pol.	mm	Peso Kg/m
7/32	5,56	44,48
1/4	6,35	50,80
9/32	7,14	57,17
5/16	7,94	64,00
11/32	8,73	69,84
3/8	9,53	76,24
7/16	11,11	88,88
1/2	12,70	101,60
9/16	14,29	114,32
5/8	15,88	128,00
11/16	17,46	139,68
3/4	19,05	152,4
13/16	20,64	165,12
7/8	22,23	177,6
15/16	23,81	190,48
1	25,40	203,20
11/8	28,58	228,64
11/4	31,75	254,00
13/8	34,93	279,44
11/2	38,10	304,80
15/8	41,28	330,24
13/4	44,45	360,00
17/8	47,63	381,04
2	50,80	406,40

# Conversão de polegadas para milímetros

# Características mecânicas dos materiais

Polegada	mm	Polegada	mm	Polegada	mm	Polegada	mm	Material	Liga	Têmpera	F	Resistência Tração: Kg/mm²	Escoamento Kg/mm²	Alongamento %	Dureza			
															Brinell	Vickers		
1/32	0,79	1.5/16	33,34	3.3/8	85,73	13	330,20	Arame de Latão	270	Recozido Meio Duro Duro	-	37	-	42	-	-		
1/16	1,58	1.11/32	34,13	3.1/2	88,90	13.1/4	336,56					56	-	5	-	-	-	-
3/32	2,38	1.3/8	34,92	3.5/8	92,08	13.1/2	342,90					79	-	-	-	-	-	-
1/8	3,18	1.13/32	35,72	3.3/4	95,25	13.3/4	349,25	Barras de Latão	360	Recozido Meio Duro Duro	-	36	15	40	75	85		
5/32	3,96	1.7/16	36,51	3.7/8	98,43	14	355,60					44	30	25	115	120		
3/16	4,76	1.15/32	37,30	4	101,60	14.1/4	361,95					52	45	12	135	140		
7/32	5,56	1.1/2	38,10	4.1/4	107,95	14.1/2	362,30	Tubos e Latões	270	Recozido Meio Duro Duro	-	35	13	52	80	84		
1/4	6,35	1.17/32	38,89	4.1/2	114,30	14.3/4	374,65					42	33	28	110	115		
9/32	7,14	1.9/16	39,69	4.3/4	120,65	15	381,00					49	44	10	135	140		
5/16	7,94	1.19/32	40,48	5	127,00	15.1/4	384,35	Laminados de Latão	268	Recozido Meio Duro Duro	F-28 F-36 F-43	34	13	58	65	68		
11/32	8,73	1.5/8	41,27	5.1/4	133,35	15.1/2	393,70					43	33	30	120	105		
3/8	9,53	1.21/32	42,07	5.1/2	139,70	15.3/4	400,05					53	48	8	145	150		
13/32	10,32	1.11/16	42,86	5.3/4	146,05	16	406,40	Barras de Cobre	110	Recozido Meio Duro Duro	F-22 F-25 F-30	22	5	45	45	50		
7/16	11,11	1.23/32	43,65	6	152,40	16.1/4	412,75					28	19	20	75	80		
15/32	11,91	1.3/4	44,45	6.1/4	158,75	16.1/2	419,10					34	28	10	95	105		
1/2	12,70	1.25/32	45,24	6.1/2	165,10	16.3/4	425,45	Tubos de Cobre	122	Recozido Meio Duro Duro	-	24	6	45	45	50		
17/32	13,49	1.13/16	46,04	6.3/4	171,45	17	431,80					35	30	8	100	110		
9/16	14,29	1.27/32	46,83	7	177,80	17.1/4	438,15					38	35	6	105	115		
19/32	15,08	1.7/8	47,62	7.1/4	184,15	17.1/2	444,50	Laminados de Cobre	120	Recozido Meio Duro Duro	F-20 F-24 F-30	22	5	48	45	50		
5/8	15,87	1.29/32	48,42	7.1/2	190,50	17.3/4	450,85					32	27	12	90	100		
21/32	16,67	1.15/16	49,21	7.1/4	196,85	18	457,20					38	34	6	105	115		
11/16	17,46	1.31/32	50,00	8	203,20	18.1/4	463,35	Barras de Alumínio	6351	Recozido Meio Duro Duro	0 T-6 T-8	12	5	16	35	-		
23/32	18,26	2	50,80	9.1/4	209,55	18.1/2	469,90					30	26	8	100	-		
3/4	19,05	2.1/16	52,39	8.1/2	215,90	18.3/4	476,25					37	35	6	115	-		
25/32	19,84	2.1/8	53,97	8.3/4	222,25	19	482,60	Laminados de Alumínio	1100 1200	Recozido Meio Duro Duro	0 H-14 H-18	8	2	27	22	24		
13/16	20,64	2.3/16	55,56	9	228,60	19.1/4	488,95					10	6	8	32	40		
27/32	21,43	2.1/4	57,15	9.1/4	234,95	19.1/2	495,30					16	8	4	42	46		
7/8	22,22	2.5/16	58,74	9.1/2	241,30	19.3/4	501,65	Laminados de Bronze	521	Recozido Duro Extra Duro	F-48 F-55 F-63	48	22	32	130/160	160/190		
29/32	23,02	2.3/8	60,32	9.3/4	247,65	20	508,00					56	58	10	160/180	180/210		
15/16	23,81	2.7/16	61,91	10	254,00	20.1/4	514,35					74	84	4	-	210/230		
31/32	24,61	2.1/2	63,50	10.1/4	260,35	20.1/2	520,70	Bucha/Tarugas de Bronze	TM-23 SAE 660 TM620	Fundição Contínua Fundição Contínua Fundição Contínua	28 30 35	16	23	75	-	-		
1	25,40	2.9/16	65,09	10.1/2	266,70	20.3/4	527,05					16	25	80	-	-		
1.1/32	26,19	2.5/8	66,67	10.3/4	273,05	21	533,40					20	20	95	-	-		
1.1/6	26,99	2.11/16	68,26	11	279,40	21.1/4	539,75	Bucha/Tarugas de Bronze	TM-23 SAE 660 TM620	Fundição Contínua Fundição Contínua Fundição Contínua	28 30 35	16	23	75	-	-		
1.3/32	27,78	2.3/4	69,85	11.1/4	285,75	21.1/2	546,10					16	25	80	-	-		
1.1/8	28,57	2.13/16	71,44	11.1/2	292,70	21.3/4	552,45					16	25	80	-	-		
1.5/32	29,37	2.7/8	73,02	11.3/4	298,45	22	558,70	Bucha/Tarugas de Bronze	TM-23 SAE 660 TM620	Fundição Contínua Fundição Contínua Fundição Contínua	28 30 35	16	23	75	-	-		
1.3/16	30,16	2.15/16	74,61	12	304,80	22.1/4	565,15					16	25	80	-	-		
1.7/32	30,95	3	76,20	12.1/4	311,15	22.1/2	571,50					16	25	80	-	-		
1.1/4	31,75	3.1/8	79,38	12.1/2	317,50	22.3/4	577,85	Bucha/Tarugas de Bronze	TM-23 SAE 660 TM620	Fundição Contínua Fundição Contínua Fundição Contínua	28 30 35	16	23	75	-	-		
1.9/32	32,54	3.1/4	82,50	12.3/4	323,85	23	584,20					16	25	80	-	-		



Denominação	Composição Química Nominal						Normas Equivalentes		Formas Fabricadas					Espessura		Latão		Cobre		Alumínio			
	Cu	Zn	Sn	Pb	Al	Outros	UNS	ASTM	Laminado	Barra	Fio	Tubo	Bucha	Fieira b.w.g.	mm	1200 x 600	2000 x 1000	1200 x 600	2000 x 1000	mm	2000 x 1000	3000 x 1000	3000 x 1250
<b>Bronze</b>																							
Bronze SAE 40	85	5	5	5			83600	584		X			X	30	0,30	1,820	5,070	1,920	5,340	0,30	1,620	2,430	3,040
Bronze SAE 62	88	2	10				90500	584		X			X	29	0,33	2,000	5,580	2,110	5,870	0,40	2,160	3,240	4,050
Bronze SAE 65	88,8		11			P 0,20	90700	427		X			X	28	0,35	2,130	5,924	2,240	6,230	0,50	2,700	4,050	5,060
Bronze Bz 12	88		12				90800	427		X			X	27	0,40	2,430	6,760	2,560	7,120	0,60	3,240	4,860	6,080
Bronze Bz 14	86		14				91000	505		X			X	26	0,46	2,800	7,770	2,950	8,190	0,70	3,780	5,670	7,090
Bronze SAE 660	83	3	7	7			93200	584		X			X	25	0,50	3,040	8,450	3,200	8,900	0,80	4,320	6,480	8,100
Bronze SAE 64	80		10	10			93700	584		X			X	24	0,55	3,350	9,300	3,520	9,790	0,90	4,860	7,290	9,110
Bronze TM 23	72	8	5	15			-	-		X			X	23	0,65	3,890	10,820	4,100	11,390	1,00	5,400	8,100	10,130
Bronze TM 620	88	4	8				-	-		X			X	22	0,71	4,320	12,000	4,550	12,640	1,20	6,480	9,720	12,150
Bronze Alumínio	89				10	Fe 1,00	95300	148		X			X	21	0,81	4,930	13,690	5,190	14,420	1,40	7,560	11,340	14,180
Cobredur	96					Si 3,00 + Mn 1,00	65500	124		X				20	0,90	5,480	15,210	5,770	16,020	1,50	8,100	12,150	15,190
Cobredur Usinável	95,6			0,4		Si 3,00 + Mn 1,00	66100	98		X				19	1,06	6,450	17,910	6,790	18,870	2,00	10,800	16,200	20,250
<b>Cobre Níquel</b>																							
Cuproníquel 90/10	88,5					Ni 10 + Fe 1,5	70600	B-111		X		X		18	1,24	7,540	21,600	7,950	22,070	2,50	13,500	20,250	23,310
Cuproníquel 80/20	79					Ni 20 + Fe 0,75	71000	B-111		X		X		17	1,45	8,820	24,500	9,290	25,810	3,00	16,200	24,300	30,380
Alpaca 65-18	65	17				Ni 18	75200	B-122	X		X			16	1,65	10,040	27,890	10,570	29,370	3,17	17,120	25,680	32,100
Alpaca 65-12	65	23				Ni 12	75700	B-122	X	X				15	1,82	11,070	30,760	11,660	32,400	3,50	28,900	28,350	35,440
Solda Alpaca	48	42				Ni 10	77300	B-122	X	X				14	2,10	12,780	35,490	13,460	37,380	4,00	21,600	32,400	40,500
Bronze Estanho														13	2,41	14,660	40,730	15,440	42,900	4,76	25,700	38,560	48,200
Bronze Fosforoso 95-5	94,8			5		P 0,20	51000	B-139	X					12	2,76	16,790	46,640	17,690	49,130	5,00	27,000	40,500	50,620
Bronze Fosforoso 92-8	91,7			8		P 0,25	52100	B-139	X					11	3,04	18,500	51,380	19,480	54,110	6,35	34,290	51,440	64,300
Bronze Grafitado SAE 841	89,5			9		C 1,5	-	255		X			X	-	3,17	19,290	53,570	20,310	56,430	7,93	42,820	64,230	80,290
<b>Alumínio</b>																							
Liga 1-S					99,5	Fe 0,40 + Si 0,25	-	1050	X					-	3,97	24,150	67,090	25,440	70,670	9,52	51,410	77,110	96,390
Liga 2-S					99,0	Fe + Si = 1,00	-	1200	X					-	4,76	28,960	80,440	30,500	84,730	12,70	68,580	102,870	128,600
Liga 28-S					Rest	Cu 4,0 + Si 0,40 + Fe 0,70	-	2011	X					-	6,35	38,630	107,310	40,690	113,030	15,87	85,700	128,550	160,700
Liga 50-S					Rest	Si 0,40 + Mg 0,70	-	6063		X	X	X		-	7,93	48,250	134,020	50,810	141,200	19,05	102,870	154,300	192,900
Liga 51-S					Rest	Si 1,00 + Mn 0,60 + Mg 0,60	-	6351		X				-	9,52	57,920	160,890	61,000	169,500	22,22	120,000	180,000	225,000
Liga 57-S					Rest	Mg 2,4 + Fe 0,40 + Si 0,25	-	5052	X					-	12,70	77,270	214,630	81,380	226,000	25,40	138,160	205,740	257,200
Liga 65-S					Rest	Si 0,60 + Cu 0,30 + Mg 1,00	-	6061		X				-	15,87	96,550	268,200	101,700	282,500	31,75	171,450	257,180	321,500
Liga 6261					Rest	Si 0,50 + Cu 0,20 + Mn 0,20 + Mg 1,0	-	6261		X				-	19,05	115,900	321,900	122,100	339,000	38,10	205,740	308,600	386,000
Liga 1235					Rest	Si + Fe = 0,65	-	1235	X					-	22,22	135,200	375,500	142,400	395,500	44,45	240,000	360,000	450,000
Liga 8011					Rest	Si 0,070 + Fe 0,80	-	8011	X					-	25,40	154,500	429,300	162,800	452,000	50,80	274,320	411,500	514,300





Largura em mm	Espessura em mm	Alumínio	Cobre	Latão	Largura em mm	Espessura em mm	Alumínio	Cobre	Latão	Diâmetros			Diâmetros			Diâmetros			Diâmetros		
										Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.
38,10	7,93	0,819	2,692	2,571	57,15	12,70	1,959	6,454	6,164	6.3/4	5	47,600	8.1/2	3	142,100	10.1/2	5.1/2	180,900	12	7.1/2	200,200
38,10	9,52	0,983	3,228	3,083	63,50	1,58	0,270	0,898	0,858	6.3/4	5.1/4	42,000	8.1/2	3.1/2	135,450	10.1/2	6	168,000	12	8	183,400
38,10	12,70	1,311	4,306	4,113	63,50	2,38	0,408	1,345	1,285	6.3/4	5.1/2	36,000	8.1/2	4	126,950	10.1/2	6.1/2	155,250	12	8.1/2	166,000
38,10	15,87	1,639	5,391	5,149	63,50	3,17	0,543	1,791	1,711	6.3/4	5.3/4	30,480	8.1/2	4.1/2	117,450	10.1/2	7	141,000	12	9	146,500
38,10	19,05	1,967	6,460	6,169	63,50	4,76	0,819	2,690	2,569	7	2	102,950	8.1/2	5	106,700	10.1/2	7.1/2	124,900	12	9.1/2	127,000
38,10	22,22	2,285	7,535	7,196	63,50	6,35	1,093	3,589	3,428	7	2.1/4	100,650	8.1/2	5.1/2	95,100	10.1/2	8	107,400	12	10	104,500
38,10	25,40	2,612	8,613	8,226	63,50	7,93	1,359	4,487	4,286	7	2.1/2	98,000	8.1/2	6	82,200	10.1/2	9	70,500	12	10.1/2	82,000
44,45	3,17	0,380	1,252	1,196	63,50	9,52	1,638	5,380	5,138	7	2.3/4	94,650	8.1/2	6.1/2	69,450	11	4	238,258	12	11	56,500
44,45	4,76	0,571	1,881	1,796	63,50	12,70	2,185	7,177	6,855	7	3	92,000	9	4	146,850	11	4.1/2	228,750	13	5	324,600
44,45	6,35	0,765	2,509	2,397	63,50	15,87	2,731	8,986	8,582	7	3.1/4	88,500	9	4.1/2	136,350	11	5	218,000	13	6	300,100
44,45	7,93	0,951	3,138	2,996	63,50	19,05	3,265	10,766	10,282	7	3.1/2	84,750	9	5	126,600	11	5.1/2	206,400	13	7	273,100
44,45	9,52	1,142	3,762	3,593	63,50	22,22	3,824	12,558	11,993	7	3.3/4	80,650	9	5.1/2	115,000	11	6	193,500	13	8	239,500
44,45	12,70	1,524	5,018	4,793	63,50	25,40	4,353	14,655	13,710	7	4	76,250	9	6	102,100	11	6.1/2	180,750	13	9	202,600
44,45	15,87	1,904	6,283	6,001	69,85	1,58	0,298	0,988	0,943	7	4.1/4	71,750	9.1/2	4	168,550	11	7	166,500	13	10	160,600
44,45	19,05	2,295	7,528	7,190	69,85	2,38	0,449	1,478	1,412	7	4.1/2	66,750	9.1/2	4.1/2	159,050	11	7.1/2	150,400	13	11	112,600
44,45	22,22	2,666	8,780	8,386	69,85	3,17	0,598	1,969	1,881	7	4.3/4	61,500	9.1/2	5	148,300	11	8	132,900	13	12	202,600
44,45	25,40	3,047	10,037	9,586	69,85	4,76	0,897	2,957	2,824	7	5	56,000	9.1/2	5.1/2	136,700	11	8.1/2	115,500	14	5	391,500
50,80	1,58	0,217	0,719	0,686	69,85	6,35	1,197	3,945	3,768	7	5.1/4	50,400	9.1/2	6	123,800	11	9	96,000	14	6	367,000
50,80	2,38	0,326	1,076	1,028	69,85	7,93	1,495	4,933	4,711	7	5.1/2	44,400	9.1/2	6.1/2	111,050	11.1/2	4	262,750	14	7	340,000
50,80	3,17	0,436	1,433	1,368	69,85	9,52	1,795	5,914	5,648	7.1/2	3	107,500	9.1/2	7	96,800	11.1/2	4.1/2	253,250	14	8	306,400
50,80	4,76	0,655	2,152	2,055	69,85	12,70	2,394	7,889	7,535	7.1/2	3.1/2	100,250	9.1/2	7.1/2	80,700	11.1/2	5	242,500	14	9	269,500
50,80	6,35	0,874	2,871	2,742	69,85	15,87	2,992	9,877	9,433	7.1/2	4	91,750	9.1/2	8	63,200	11.1/2	5.1/2	230,900	14	10	227,500
50,80	7,93	1,087	3,590	3,438	69,85	19,05	3,591	11,834	11,303	7.1/2	4.1/2	82,250	9.1/2	8.1/2	45,800	11.1/2	6	218,000	14	11	179,500
50,80	9,52	1,310	4,304	4,111	69,85	22,22	4,189	13,804	13,183	7.1/2	5	71,500	10	4	190,750	11.1/2	6.1/2	205,250	14	12	129,500
50,80	12,70	1,748	5,742	5,484	69,85	25,40	4,788	15,779	15,070	7.1/2	5.1/2	59,900	10	4.1/2	181,250	11.1/2	7	191,000	14	13	72,900
50,80	15,87	2,176	7,189	6,866	76,20	1,58	0,325	1,078	1,029	7.1/2	6	49,000	10	5	170,500	11.1/2	7.1/2	174,900	15	5	457,500
50,80	19,05	2,613	8,613	8,226	76,20	2,38	0,489	1,614	1,541	7.1/2	6.1/2	34,250	10	5.1/2	158,900	11.1/2	8	157,400	15	6	433,000
50,80	22,22	3,046	10,146	9,594	76,20	3,17	0,655	2,150	2,053	8	3	125,600	10	6	146,000	11.1/2	8.1/2	14,000	15	7	406,000
50,80	25,40	3,482	11,484	10,968	76,20	4,76	0,983	3,228	3,083	8	3.1/2	118,350	10	6.1/2	133,250	12	4	288,750	15	8	372,400
57,15	3,17	0,489	1,611	1,539	76,20	6,35	1,311	4,307	4,113	8	4	109,850	10	7	119,000	12	4.1/2	279,250	15	9	335,500
57,15	4,76	0,734	2,419	2,310	76,20	7,93	1,638	5,385	5,153	8	4.1/2	100,350	10	7.1/2	102,900	12	5	268,500	15	10	393,500
57,15	6,35	0,983	3,227	3,082	76,20	9,52	1,966	6,456	6,166	8	5	89,600	10	8	85,400	12	5.1/2	256,900	15	11	245,500
57,15	7,93	1,223	4,035	3,854	76,20	12,70	2,623	8,613	8,226	8	5.1/2	78,000	10.1/2	4	212,750	12	6	244,000	15	12	195,500
57,15	9,52	1,468	4,838	4,620	76,20	15,87	3,264	10,783	10,298	8	6	65,100	10.1/2	4.1/2	203,250	12	6.1/2	231,250	15	13	139,000
					76,20	15,87				8	6.1/2	52,350	10.1/2	5	192,500	12	7	217,000	15	14	70,000

Diâmetros			Diâmetros			Diâmetros			Diâmetros			Largura em mm	Espessura em mm	Alumínio	Cobre	Latão	Largura em mm	Espessura em mm	Alumínio	Cobre	Latão
Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.										
5.5/8	4.1/2	28,650	5.3/4	4.5/8	29,350	6	2.1/8	73,600	6.1/4	3.3/4	57,750	76,20	19,05	3,918	12,920	12,339	101,60	3,17	0,876	2,866	2,738
5.5/8	4.5/8	26,150	5.3/4	4.3/4	26,600	6	2.1/4	72,400	6.1/4	4	53,350	76,20	22,22	4,570	15,069	14,392	101,60	4,76	1,311	4,304	4,111
5.5/8	4.3/4	23,400	5.3/4	4.7/8	23,950	6	2.3/8	71,150	6.1/4	4.1/4	48,850	76,20	25,40	5,224	17,226	16,451	101,60	6,35	1,741	5,742	5,484
5.5/8	4.7/8	20,750	5.3/4	5	21,100	6	2.1/2	69,750	6.1/4	4.1/2	43,850	82,55	3,17	0,706	2,327	2,223	101,60	7,93	2,174	7,180	6,857
5.5/8	5	17,900	5.3/4	5.1/8	18,350	6	2.5/8	68,400	6.1/4	4.3/4	38,600	82,55	4,76	1,060	3,495	3,338	101,60	9,52	2,621	8,608	8,221
5.5/8	5.1/8	15,150	5.3/4	5.1/4	15,500	6	2.3/4	66,400	6.1/4	5	37,100	82,55	6,35	1,415	4,663	4,453	101,60	12,70	3,497	11,484	10,968
5.3/4	1	74,600	5.7/8	2	71,450	6	2.7/8	65,350	6.1/4	5.1/4	27,500	82,55	7,93	1,767	5,830	5,568	101,60	15,87	4,352	14,377	13,731
5.3/4	1.1/8	74,050	5.7/8	2.1/8	70,350	6	3	63,750	6.1/2	2	87,700	82,55	9,52	2,121	6,990	6,676	101,60	19,05	5,224	17,226	16,452
5.3/4	1.1/4	73,400	5.7/8	2.1/4	69,150	6	3.1/8	62,000	6.1/2	2.1/4	85,400	82,55	12,70	2,829	9,325	8,906	101,60	22,22	6,093	20,092	19,189
5.3/4	1.3/8	72,700	5.7/8	2.3/8	67,900	6	3.1/4	60,250	6.1/2	2.1/2	82,750	82,55	15,87	3,536	11,674	11,150	101,60	25,40	6,965	22,968	21,935
5.3/4	1.1/2	71,900	5.7/8	2.1/2	66,500	6	3.3/8	58,500	6.1/2	2.3/4	79,400	82,55	19,05	4,244	13,988	13,359	114,30	6,35	1,959	6,460	6,170
5.3/4	1.5/8	71,050	5.7/8	2.5/8	65,150	6	3.1/2	56,500	6.1/2	3	76,750	82,55	22,22	4,950	16,315	15,582	114,30	9,52	2,937	9,685	9,249
5.3/4	1.3/4	70,100	5.7/8	2.3/4	63,150	6	3.5/8	54,500	6.1/2	3.1/4	73,250	82,55	25,40	5,659	18,650	17,812	114,30	12,70	3,918	12,919	12,339
5.3/4	1.7/8	86,100	5.7/8	2.7/8	62,100	6	3.3/4	52,400	6.1/2	3.1/2	69,500	88,90	3,17	0,761	2,508	2,396	127,00	6,35	2,185	7,178	6,855
5.3/4	2	68,050	5.7/8	3	60,500	6	3.7/8	50,250	6.1/2	3.3/4	65,400	88,90	4,76	1,142	3,766	3,597	127,00	9,52	3,276	10,761	10,277
5.3/4	2.1/8	66,950	5.7/8	3.1/8	58,750	6	4	48,000	6.1/2	4	61,000	88,90	6,35	1,524	5,025	4,768	127,00	12,70	4,371	14,355	13,710
5.3/4	2.1/4	65,750	5.7/8	3.1/4	57,000	6	4.1/8	45,750	6.1/2	4.1/4	56,500	88,90	7,93	1,903	6,282	6,000	139,70	6,35	2,394	7,896	7,541
5.3/4	2.3/8	64,500	5.7/8	3.3/8	55,250	6	4.1/4	43,500	6.1/2	4.1/2	51,500	88,90	9,52	2,284	7,532	7,194	139,70	9,52	3,589	11,837	11,304
5.3/4	2.1/2	63,100	5.7/8	3.1/2	53,250	6	4.3/8	41,000	6.1/2	4.3/4	46,250	88,90	12,70	3,047	10,048	6,597	139,70	12,70	4,788	15,790	15,081
5.3/4	2.5/8	61,750	5.7/8	3.5/8	51,250	6	4.1/2	38,500	6.1/2	5	40,750	88,90	15,87	3,808	12,580	12,015	152,40	6,35	2,612	8,614	8,226
5.3/4	2.3/4	59,750	5.7/8	3.3/4	49,150	6	4.5/8	36,000	6.1/2	5.1/4	35,150	88,90	19,05	4,571	15,073	14,395	152,40	9,52	3,916	12,913	12,332
5.3/4	2.7/8	58,700	5.7/8	3.7/8	47,000	6	4.3/4	33,250	6.1/2	5.1/2	29,150	88,90	22,22	5,331	18,214	16,790	152,40	12,70	5,224	17,226	16,451
5.3/4	3	57,100	5.7/8	4	44,750	6	4.7/8	30,600	6.3/4	2	95,550	88,90	25,40	6,094	20,097	19,193	152,40	15,87	6,466	21,566	20,597
5.3/4	3.1/8	55,350	5.7/8	4.1/8	42,500	6	5	27,750	6.3/4	2.1/4	92,250	95,25	3,17	0,815	2,685	2,566	152,40	19,05	7,747	25,839	24,678
5.3/4	3.1/4	53,600	5.7/8	4.1/4	40,250	6	5.1/8	25,000	6.3/4	2.1/2	89,600	95,25	4,76	1,224	4,033	3,852	152,40	22,22	9,036	30,139	28,784
5.3/4	3.3/8	51,580	5.7/8	4.3/8	37,750	6	5.1/4	22,150	6.3/4	2.3/4	86,250	95,25	6,35	1,632	5,381	5,139	152,40	25,40	10,330	34,451	32,903
5.3/4	3.1/2	49,859	5.7/8	4.1/2	35,250	6	5.3/8	19,150	6.3/4	3	83,600	95,25	7,93	2,039	6,728	6,425	165,10	3,17	13,967	4,657	32,903
5.3/4	3.5/8	47,850	5.7/8	4.5/8	32,750	6	5.1/2	16,150	6.3/4	3.1/4	80,100	95,25	9,52	2,447	8,066	7,703	165,10	3,97	1,749	5,833	5,572
5.3/4	3.3/4	45,750	5.7/8	4.3/4	30,000	6.1/4	2	80,000	6.3/4	3.1/2	76,350	95,25	12,70	3,265	10,760	10,277	165,10	4,76	2,097	6,994	6,680
5.3/4	3.7/8	43,600	5.7/8	4.7/8	27,350	6.1/4	2.1/4	77,750	6.3/4	3.3/4	72,250	95,25	15,87	4,080	13,472	12,866	165,10	5,55	2,450	8,169	7,803
5.3/4	4	41,350	5.7/8	5	24,500	6.1/4	2.1/2	75,100	6.3/4	4	67,850	95,25	19,05	4,897	16,141	15,416	165,10	6,35	2,798	9,331	8,912
5.3/4	4.1/8	39,100	5.7/8	5.1/8	21,750	6.1/4	2.3/4	71,750	6.3/4	4.1/4	63,350	95,25	22,22	5,712	18,827	17,980	165,10	7,93	3,498	11,668	11,142
5.3/4	4.1/4	36,850	5.7/8	5.1/4	18,900	6.1/4	3	69,100	6.3/4	4.1/2	58,350	95,25	25,40	6,530	21,521	20,554					
5.3/4	4.3/8	34,350	5.7/8	5.3/8	15,900	6.1/4	3.1/4	65,600	6.3/4	4.3/4	53,000	95,25									
5.3/4	4.1/2	31,850	6	2	74,700	6.1/4	3.1/2	61,850	-	-	-										

Largura		Espessura		Cantoneira			Perfil "U"		Diâmetros			Diâmetros			Diâmetros			Diâmetros		
mm	Polegada	mm	Polegada	Alumínio	Latão	Aço Inoxidável	Alumínio	Latão	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.
9,52	3/8	1,58	1/16	0,175	0,234	-	0,109	0,342	5,1/8	1	59,100	5,1/4	2	55,550	5,3/8	2,7/8	49,200	5,1/2	3,7/8	37,250
9,52	3/8	2,38	3/36	0,104	0,324	-	0,153	0,480	5,1/8	1.1/8	58,550	5,1/4	2,1/8	54,450	5,3/8	3	47,600	5,1/2	4	35,000
9,52	3/8	3,17	1/8	0,136	0,428	-	0,189	0,596	5,1/8	1.1/4	57,900	5,1/4	2,1/4	53,250	5,3/8	3,1/8	45,850	5,1/2	4,1/4	30,500
12,70	1/2	1,58	1/16	0,102	0,322	0,195	0,150	0,472	5,1/8	1,3/8	57,200	5,1/4	2,3/8	52,000	5,3/8	3,1/4	44,100	5,1/2	4,3/8	28,000
12,70	1/2	2,38	3/32	0,148	0,466	0,429	0,214	0,675	5,1/8	1,1/2	56,400	5,1/4	2,1/2	50,600	5,3/8	3,3/8	42,350	5,1/2	4,1/2	25,500
12,70	1/2	3,17	1/8	0,191	0,601	0,551	0,273	0,858	5,1/8	1,5/8	55,500	5,1/4	2,5/8	49,250	5,3/8	3,1/2	40,350	5,1/2	4,5/8	23,000
15,87	5/8	1,58	1/16	0,130	0,408	0,377	0,191	0,601	5,1/8	1,3/4	54,600	5,1/4	2,3/4	47,250	5,3/8	3,5/8	38,350	5,1/2	4,3/4	20,250
15,87	5/8	2,38	3/32	0,189	0,594	0,540	0,276	0,868	5,1/8	1,7/8	53,600	5,1/4	2,7/8	46,200	5,3/8	3,3/4	36,250	5,1/2	4,7/8	17,600
15,87	5/8	3,17	1/8	0,245	0,773	0,710	0,354	1,116	5,1/8	2	52,550	5,1/4	3	44,600	5,3/8	3,7/8	34,100	5,5/8	1	71,400
19,05	3/4	1,58	1/16	0,152	0,493	0,455	0,232	0,729	5,1/8	2,1/4	51,450	5,1/4	3,1/8	42,850	5,3/8	4	31,850	5,5/8	1,1/8	70,850
19,05	3/4	2,38	3/32	0,230	0,723	0,667	0,337	1,060	5,1/8	2,3/8	50,250	5,1/4	3,1/4	41,100	5,3/8	4,1/4	27,350	5,5/8	1,1/4	70,200
19,05	3/4	3,17	1/8	0,300	0,944	0,867	0,436	1,373	5,1/8	2,1/2	49,000	5,1/4	3,3/8	39,350	5,3/8	4,3/8	24,850	5,5/8	1,3/8	69,500
22,22	7/8	1,58	1/16	0,184	0,579	0,533	0,273	0,858	5,1/8	2,1/2	47,600	5,1/4	3,1/2	37,350	5,3/8	4,1/2	22,350	5,5/8	1,1/2	68,700
22,22	7/8	2,58	3/32	0,270	0,851	0,783	0,398	1,253	5,1/8	2,3/4	46,250	5,1/4	3,5/8	35,350	5,3/8	4,5/8	19,850	5,5/8	1,5/8	67,850
22,22	7/8	3,17	1/8	0,354	1,116	1,023	0,518	1,631	5,1/8	2,3/4	44,230	5,1/4	3,3/4	33,250	5,3/8	4,3/4	17,100	5,5/8	1,3/4	66,900
22,22	7/8	3,17	1/8	0,354	1,116	1,023	0,518	1,631	5,1/8	2,7/8	43,200	5,1/4	3,7/8	31,100	5,1/2	1	68,250	5,5/8	1,7/8	65,900
25,40	1	1,58	1/16	0,211	0,665	0,611	0,313	0,987	5,1/8	3	41,600	5,1/4	4	28,850	5,1/2	1,1/4	67,050	5,5/8	2	64,850
25,40	1	2,38	3/32	0,311	0,980	0,901	0,459	1,445	5,1/8	3,1/8	39,860	5,1/4	4,1/4	24,350	5,1/2	1,3/8	66,350	5,5/8	2,1/4	62,550
25,40	1	3,17	1/8	0,409	1,287	1,183	0,600	1,888	5,1/8	3,1/4	38,100	5,1/4	4,3/8	21,850	5,1/2	1,1/2	65,500	5,5/8	2,3/8	61,300
31,75	1.1/4	1,58	1/16	0,266	0,837	0,771	0,395	1,244	5,1/8	3,3/8	36,350	5,1/4	4,1/2	19,350	5,1/2	1,5/8	64,700	5,5/8	2,1/2	59,900
31,75	1.1/4	2,38	3/32	0,393	1,236	1,139	0,582	1,831	5,1/8	3,1/2	35,350	5,1/4	4,5/8	16,850	5,1/2	1,3/4	63,750	5,5/8	2,5/8	58,550
31,75	1.1/4	3,17	1/8	0,518	1,630	1,496	0,763	2,403	5,1/8	3,5/8	32,350	5,1/4	4,3/4	14,100	5,1/2	1,7/8	62,750	5,5/8	2,3/4	56,550
37,10	1.1/2	1,58	1/16	0,320	1,008	0,928	0,477	1,502	5,1/8	3,3/4	30,250	5,3/8	1	65,100	5,1/2	2	61,700	5,5/8	2,7/8	55,500
37,10	1.1/2	2,38	3/32	0,474	1,493	1,374	0,704	2,216	5,1/8	3,7/8	28,100	5,3/8	1,1/4	63,900	5,1/2	2,1/8	60,600	5,5/8	3	53,900
37,10	1.1/2	3,17	1/8	0,627	1,974	1,812	0,927	2,918	5,1/8	4	25,850	5,3/8	1,3/8	63,200	5,1/2	2,1/4	59,400	5,5/8	3,1/8	52,150
44,45	1.3/4	1,58	1/16	0,375	1,180	1,087	0,559	1,759	5,1/8	4,1/8	23,600	5,3/8	1,1/2	62,400	5,1/2	2,3/8	58,150	5,5/8	3,1/4	50,400
44,45	1.3/4	2,38	3/32	0,556	1,750	1,612	0,826	2,601	5,1/8	4,1/4	21,350	5,3/8	1,5/8	61,150	5,1/2	2,1/2	56,750	5,5/8	3,3/8	48,650
44,45	1.3/4	3,17	1/8	0,736	2,317	2,128	1,090	3,433	5,1/8	4,3/8	18,850	5,3/8	1,3/4	60,600	5,1/2	2,5/8	55,400	5,5/8	3,1/2	46,650
50,80	2	1,58	1/16	0,429	1,352	1,244	0,641	2,017	5,1/4	1	62,100	5,3/8	1,7/8	59,600	5,1/2	2,3/4	53,400	5,5/8	3,5/8	44,650
50,80	2	2,38	3/32	0,638	2,007	1,850	0,949	2,987	5,1/4	1.1/4	60,900	5,3/8	2	58,550	5,1/2	3	50,750	5,5/8	3,3/4	42,550
50,80	2	3,17	1/8	0,845	2,660	2,442	1,254	3,947	5,1/4	1,3/8	60,200	5,3/8	2,1/4	56,250	5,1/2	3,1/4	47,250	5,5/8	3,7/8	40,400
									5,1/4	1,1/2	59,400	5,3/8	2,3/8	55,000	5,1/2	3,3/8	45,500	5,5/8	4	38,150
									5,1/4	1,5/8	58,550	5,3/8	2,1/2	53,600	5,1/2	3,1/2	43,500	5,5/8	4,1/4	33,650
									5,1/4	1,3/4	57,600	5,3/8	2,5/8	52,250	5,1/2	3,5/8	41,500	5,5/8	4,3/8	31,150
									5,1/4	1,7/8	56,600	5,3/8	2,3/8	50,250	5,1/2	3,3/4	39,400	-	-	-

# BUCHAS DE BRONZE 500mm



# VERGALHOES - peso em kg por metro



Diâmetros			Diâmetros			Diâmetros			Diâmetros			Medidas		Cobre			Latão			Alumínio		
Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Polegada	mm	Redondo	Sextavado	Quadrado	Redondo	Sextavado	Quadrado	Redondo	Sextavado	Quadrado
4,3/8	3,3/8	20,000	4,5/8	1,5/8	44,450	4,3/4	2,3/4	35,800	4,7/8	3,3/4	34,650	1/16	1,58	0,018	0,019	0,022	0,017	0,019	0,021	-	-	-
4,3/8	3,1/2	18,000	4,5/8	1,3/4	43,500	4,3/4	2,7/8	34,750	4,7/8	3,7/8	22,500	3/32	2,38	0,040	0,044	0,050	0,038	0,042	0,048	0,012	-	-
4,3/8	3,5/8	16,000	4,5/8	1,7/8	42,500	4,3/4	3	33,150	4,7/8	4	20,250	-	2,50	0,044	0,048	0,055	0,042	0,046	0,053	0,013	-	-
4,3/8	3,3/4	13,900	4,5/8	2	41,450	4,3/4	3,1/8	31,400	4,7/8	4,1/8	18,000	-	3,00	0,063	0,070	0,080	0,060	0,066	0,076	0,020	-	-
4,3/8	3,7/8	11,750	4,5/8	2,1/8	10,350	4,3/4	3,1/4	39,650	4,7/8	4,1/4	15,750	1/8	3,17	0,070	0,078	0,090	0,067	0,074	0,086	0,021	0,023	0,027
4,1/2	1	42,250	4,5/8	2,1/4	39,150	4,3/4	3,3/8	27,900	4,7/8	4,3/8	13,250	5/32	3,96	0,110	0,121	0,140	0,105	0,116	0,134	0,033	0,036	0,042
4,1/2	1,1/8	44,700	4,5/8	2,3/8	37,900	4,3/4	3,1/2	25,900	5	1	56,250	-	4,50	0,141	0,156	0,181	0,136	0,149	0,172	0,043	0,047	-
4,1/2	1,1/4	44,050	4,5/8	2,1/2	36,500	4,3/4	3,5/8	23,900	5	1,1/8	55,700	3/16	4,76	0,158	0,175	0,201	0,152	0,167	0,194	0,048	0,053	0,061
4,1/2	1,3/8	43,350	4,5/8	2,5/8	35,150	4,3/4	3,3/4	21,800	5	1,1/4	55,050	-	5,00	0,175	0,192	0,223	0,169	0,184	0,212	0,053	0,058	0,067
4,1/2	1,1/2	41,550	4,5/8	2,3/4	33,150	4,3/4	3,7/8	19,650	5	1,3/8	54,350	7/32	5,55	0,216	0,238	0,274	0,205	0,228	0,262	0,065	0,072	0,083
4,1/2	1,5/8	41,700	4,5/8	2,7/8	32,100	4,3/4	4	17,400	5	1,1/2	53,550	-	6,00	0,252	0,277	0,321	0,243	0,264	0,306	0,076	0,084	0,097
4,1/2	1,3/4	40,750	4,5/8	3	30,500	4,3/4	4,1/8	15,150	5	1,5/8	52,700	1/4	6,35	0,281	0,311	0,358	0,269	0,269	0,342	0,086	0,096	0,111
4,1/2	1,7/8	29,750	4,5/8	3,1/8	28,750	4,3/4	4,1/4	12,900	5	1,3/4	21,750	-	7,00	0,343	0,377	0,438	0,331	0,360	0,416	0,104	0,114	0,132
4,1/2	2	38,700	4,5/8	3,1/4	27,000	4,7/8	1	53,500	5	1,7/8	50,750	9/32	7,14	0,357	0,394	0,455	0,341	0,375	0,433	0,108	0,119	0,137
4,1/2	2,1/8	37,600	4,5/8	3,3/8	25,250	4,7/8	1,1/8	52,950	5	2	49,700	-	7,50	0,394	0,433	0,502	0,380	0,414	0,478	0,119	0,131	-
4,1/2	2,1/4	36,400	4,5/8	3,1/2	23,250	4,7/8	1,1/4	52,300	5	2,1/8	48,600	5/16	7,93	0,440	0,486	0,561	0,421	0,465	0,536	0,136	0,150	0,173
4,1/2	2,3/8	35,150	4,5/8	3,5/8	21,250	4,7/8	1,3/8	51,600	5	2,1/4	47,400	11/32	8,73	0,533	0,588	0,678	0,509	0,562	0,648	0,161	0,178	0,205
4,1/2	2,1/2	33,750	4,5/8	3,3/4	19,500	4,7/8	1,1/2	50,800	5	2,3/8	45,150	3/8	9,52	0,634	0,699	0,807	0,606	0,669	0,771	0,193	0,216	0,250
4,1/2	2,5/8	32,400	4,5/8	3,7/8	17,000	4,7/8	1,5/8	19,950	5	2,1/2	44,750	13/32	10,31	0,743	0,820	0,948	0,712	0,785	0,906	0,225	0,249	-
4,1/2	2,3/4	30,400	4,5/8	4	14,750	4,7/8	1,3/4	49,000	5	2,5/8	43,400	7/16	11,11	0,863	0,952	1,099	0,825	0,910	1,050	0,262	0,294	0,340
4,1/2	2,7/8	29,350	4,5/8	4,1/8	12,500	4,7/8	1,7/8	48,000	5	2,3/4	41,400	-	12,00	1,000	1,108	1,224	0,973	1,060	1,224	0,305	0,337	0,388
4,1/2	3	27,750	4,3/4	1	50,650	4,7/8	2	46,950	5	2,7/8	40,350	1/2	12,70	1,127	1,242	1,435	1,077	1,118	1,372	0,348	0,384	0,444
4,1/2	3,1/8	26,000	4,3/4	1,1/8	50,100	4,7/8	2,1/8	45,850	5	3	38,750	9/16	14,28	1,426	1,570	1,822	1,363	1,504	1,743	0,441	0,486	0,560
4,1/2	3,1/4	24,250	4,3/4	1,1/4	49,450	4,7/8	2,1/4	44,650	5	3,1/8	37,000	5/8	15,87	1,762	1,940	2,237	1,683	1,862	2,145	0,544	0,661	0,693
4,1/2	3,3/8	22,500	4,3/4	1,3/8	48,750	4,7/8	2,3/8	43,400	5	3,1/4	35,250	11/16	17,46	2,133	2,355	2,710	2,041	2,249	2,592	0,645	0,714	0,820
4,1/2	3,1/2	20,500	4,3/4	1,1/2	47,950	4,7/8	2,1/2	42,000	5	3,3/8	33,500	3/4	19,05	2,533	2,799	3,229	2,428	2,681	3,083	0,784	0,865	0,998
4,1/2	3,5/8	18,500	4,3/4	1,5/8	47,100	4,7/8	2,5/8	40,650	5	3,1/2	31,500	13/16	20,63	2,977	3,288	3,792	2,845	3,143	3,619	0,901	0,997	1,145
4,1/2	3,3/4	16,400	4,3/4	1,3/4	46,150	4,7/8	2,3/4	38,650	5	3,5/8	29,500	7/8	22,22	3,451	3,807	4,399	3,307	3,634	4,200	1,067	1,117	1,358
4,1/2	3,7/8	14,250	4,3/4	1,7/8	45,150	4,7/8	2,7/8	37,600	5	3,3/4	27,400	15/16	23,81	3,970	4,369	5,051	3,783	4,171	4,826	1,201	1,351	1,530
4,1/2	4	12,000	4,3/4	2	44,100	4,7/8	3	36,000	5	3,7/8	25,250	1	25,40	4,503	4,977	5,747	4,305	4,751	5,481	1,399	1,538	1,744
4,5/8	1	48,000	4,3/4	2,1/8	43,000	4,7/8	3,1/8	34,250	5	4	23,000	1.1/16	26,98	5,095	5,614	6,488	4,871	5,362	6,196	1,542	1,706	1,960
4,5/8	1,1/8	47,750	4,3/4	2,1/4	41,800	4,7/8	3,1/4	32,500	5	4,1/8	20,750	1.1/8	28,57	5,703	6,295	7,273	5,451	6,017	6,941	1,764	1,946	-
4,5/8	1,1/4	46,800	4,3/4	2,3/8	40,550	4,7/8	3,3/8	30,750	5	4,1/4	18,500	-	-	-	-	-	-	-	-	-	-	-
4,5/8	1,3/8	46,100	4,3/4	2,1/2	39,150	4,7/8	3,1/2	28,750	5	4,3/8	16,000	-	-	-	-	-	-	-	-	-	-	-
4,5/8	1,1/2	45,300	4,3/4	2,5/8	37,800	4,7/8	3,5/8	26,750	5	4,1/2	13,500	-	-	-	-	-	-	-	-	-	-	-

Medidas		Cobre			Latão			Alumínio			Diâmetros			Diâmetros			Diâmetros			Diâmetros		
Polegada	mm	Redondo	Sextavado	Quadrado	Redondo	Sextavado	Quadrado	Redondo	Sextavado	Quadrado	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.
1.3/16	30,16	6,350	7,000	8,100	6,080	6,700	7,750	1,927	2,130	2,450	3.3/4	1.3/4	26,500	3.7/8	3.1/4	12,250	4.1/8	1.1/4	36,550	4.1/4	2.3/8	30,150
1.1/4	31,75	7,050	7,780	8,980	6,730	7,430	8,580	2,177	2,402	2,772	3.3/4	1.7/8	25,500	3.7/8	3.3/8	10,500	4.1/8	1.3/8	35,850	4.1/4	2.1/2	28,750
1.5/16	33,33	7,760	8,560	9,890	7,420	8,190	9,460	2,354	2,604	2,996	3.3/4	2	24,450	3.7/8	3.1/2	8,500	4.1/8	1.1/2	35,050	4.1/4	2.5/8	27,400
1.3/8	34,92	8,530	9,400	10,860	8,150	8,980	10,380	2,634	2,907	3,354	3.3/4	2.1/8	23,350	3.7/8	3.5/8	6,500	4.1/8	1.5/8	31,200	4.1/4	2.3/4	25,400
1.7/16	36,51	9,320	10,280	11,860	8,910	9,820	11,340	2,824	3,124	3,595	3.3/4	2.1/4	22,150	4	1/2	37,050	4.1/8	1.3/4	33,250	4.1/4	2.7/8	24,350
1.1/2	38,10	10,150	11,180	12,920	9,700	10,700	12,350	3,135	3,460	3,992	3.3/4	2.3/8	20,900	4	5/8	36,800	4.1/8	1.7/8	32,250	4.1/4	3	22,750
1.9/16	39,68	11,000	12,150	14,010	10,520	11,600	13,390	3,360	3,690	4,240	3.3/4	2.1/2	19,500	4	3/4	36,450	4.1/8	2	31,200	4.1/4	3.1/8	21,000
1.5/8	41,27	11,910	13,120	15,110	11,380	12,560	14,490	3,679	4,060	4,685	3.3/4	2.5/8	18,150	4	7/8	36,000	4.1/8	2.1/8	30,100	4.1/4	3.1/4	19,250
1.11/16	42,86	12,840	14,160	16,290	12,273	13,540	15,640	3,892	4,305	4,954	3.3/4	2.3/4	16,150	4	1	35,500	4.1/8	2.1/4	38,900	4.1/4	3.3/8	17,500
1.3/4	44,45	13,800	15,260	17,630	13,200	14,550	16,830	4,267	4,709	5,433	3.3/4	2.7/8	15,100	4	1.1/8	34,950	4.1/8	2.3/8	27,650	4.1/4	3.1/2	15,500
1.13/16	46,03	14,810	16,290	18,810	14,170	15,640	18,020	4,490	4,966	5,715	3.3/4	3	13,500	4	1.1/4	34,300	4.1/8	2.1/2	28,250	4.1/4	3.5/8	13,500
1.7/8	47,62	15,850	17,480	20,144	15,190	16,680	19,360	4,805	5,315	6,110	3.3/4	3.1/4	11,750	4	1.3/8	33,600	4.1/8	2.5/8	24,900	4.1/4	3.3/4	11,400
1.15/16	49,21	16,890	18,660	21,625	16,230	17,870	20,550	5,130	5,676	6,530	3.7/8	1/2	34,800	4	1.1/2	32,800	4.1/8	2.3/4	22,900	4.3/8	1/2	44,300
2	50,80	18,070	19,850	22,960	17,280	19,070	21,900	5,574	6,150	7,100	3.7/8	5/8	34,550	4	1.3/4	31,000	4.1/8	3	20,250	4.3/8	3/4	43,700
2.1/8	53,97	20,290	22,510	25,920	19,510	21,450	24,730	6,292	6,943	8,010	3.7/8	3/4	34,200	4	1.7/8	30,000	4.1/8	3.1/8	18,500	4.3/8	7/8	43,250
2.1/4	57,15	22,810	25,180	29,030	21,750	24,130	27,850	7,054	7,784	8,980	3.7/8	7/8	33,750	4	2	28,950	4.1/8	3.1/4	16,750	4.3/8	1	42,750
2.3/8	60,32	25,480	28,000	32,440	24,280	26,810	30,980	7,860	8,613	10,010	3.7/8	1	33,250	4	2.1/8	27,850	4.1/8	3.1/8	15,000	4.3/8	1.1/8	42,200
2.1/2	63,50	28,140	31,100	35,840	26,960	29,641	34,260	8,709	9,600	11,090	3.7/8	1.1/8	32,700	4	2.1/4	26,650	4.1/8	3.1/2	13,000	4.3/8	1.1/4	41,550
2.5/8	66,67	31,100	34,220	39,550	29,641	32,770	37,830	9,418	10,418	11,990	3.7/8	1.1/4	32,050	4	2.3/8	24,400	4.1/8	3.5/8	11,000	4.3/8	1.3/8	40,850
2.3/4	69,85	34,070	37,620	43,400	32,620	35,900	41,560	10,538	11,630	13,417	3.7/8	1.3/8	31,350	4	2.1/2	24,000	4.1/4	1/2	41,800	4.3/8	1.1/2	40,050
2.7/8	73,02	37,330	41,030	47,400	35,600	39,320	45,430	11,298	12,500	14,380	3.7/8	1.1/2	30,550	4	2.5/8	22,650	4.1/4	5/8	41,550	4.3/8	1.5/8	39,200
3	76,20	40,590	44,730	51,700	38,730	42,750	49,450	12,541	13,840	15,970	3.7/8	1.5/8	29,700	4	2.3/4	20,650	4.1/4	3/4	41,200	4.3/8	1.3/4	38,250
3.1/4	82,55	47,700	52,580	60,600	45,580	50,200	57,940	14,440	15,970	18,380	3.7/8	1.3/4	28,750	4	2.7/8	19,600	4.1/4	7/8	40,750	4.3/8	1.7/8	37,250
3.1/2	88,90	55,250	60,880	70,360	52,730	58,240	67,180	16,754	18,525	21,500	3.7/8	1.7/8	27,750	4	3	18,000	4.1/4	1	40,250	4.3/8	2	36,200
3.3/4	95,25	63,400	69,910	80,720	60,620	66,880	77,160	19,225	21,260	24,600	3.7/8	2	26,700	4	3.1/8	16,250	4.1/4	1.1/8	39,700	4.3/8	2.1/8	35,100
4	101,60	72,130	79,540	91,830	68,960	76,110	87,371	21,878	24,200	28,000	3.7/8	2.1/8	25,600	4	3.1/4	14,500	4.1/4	1.1/4	39,050	4.3/8	2.1/4	33,900
4.1/2	114,30	91,240	100,700	116,270	87,280	96,220	111,120	27,690	30,620	35,500	3.7/8	2.1/4	24,400	4	3.3/8	12,750	4.1/4	1.3/8	38,350	4.3/8	2.3/8	32,650
5	127,00	113,240	124,240	144,190	109,030	118,720	137,100	34,186	37,800	44,000	3.7/8	2.3/8	23,150	4	3.1/2	10,750	4.1/4	1.1/2	37,550	4.3/8	2.1/2	31,250
6	152,40	163,40	163,070	179,810	207,640	157,000	197,420	49,235	54,440	63,000	3.7/8	2.1/2	21,750	4.1/8	1/2	39,300	4.1/4	1.5/8	36,700	4.3/8	2.5/8	29,900
7	177,80	221,950	244,750	282,620	213,700	213,700	268,710	67,036	74,100	85,500	3.7/8	2.5/8	20,400	4.1/8	5/8	39,050	4.1/4	1.3/4	35,750	4.3/8	2.3/4	27,900
8	203,20	289,900	319,670	369,130	279,120	303,940	350,970	87,560	96,800	111,500	3.7/8	2.3/4	18,400	4.1/8	3/4	38,700	4.1/4	1.7/8	34,750	4.3/8	2.7/8	26,650
9	228,60	366,900	404,580	467,190	353,260	384,670	444,190	96,960	122,500	141,000	3.7/8	2.7/8	17,350	4.1/8	7/8	38,250	4.1/4	2	33,700	4.3/8	3	25,250
											3.7/8	3	15,750	4.1/8	1	37,750	4.1/4	2.1/8	32,600	4.3/8	3.1/8	23,500
											3.7/8	3.1/8	14,000	4.1/8	1.1/8	37,200	4.1/4	2.1/4	31,400	4.3/8	3.1/4	21,750



Diâmetros			Diâmetros			Diâmetros			Diâmetros			Espessura da Parede																	
Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Diâmetro Externo Polegada	mm	1/32" - 0,79 mm			1 mm			1/16" - 1,58 mm			3/32" - 2,38 mm			1/8" - 3,17 mm			
														Alumínio	Cobre	Latão	Alumínio	Cobre	Latão	Alumínio	Cobre	Latão	Alumínio	Cobre	Latão	Alumínio	Cobre	Latão	
2.7/8	1/2	19,050	3.1/8	5/8	22,300	3.3/8	5/8	26,050	3.1/2	2.5/8	13,900	1/8	3.17	0,016	0,053	0,050	0,018	0,061	0,059	-	-	-	-	-	-	-	-	-	
2.7/8	5/8	18,800	3.1/8	3/4	21,950	3.3/8	3/4	25,700	3.1/2	2.3/4	11,900	5/32	3,96	0,021	0,070	0,067	0,025	0,083	0,080	0,032	0,105	0,101	-	-	-	-	-	-	
2.7/8	3/4	18,450	3.1/8	7/8	21,500	3.3/8	7/8	25,250	3.1/2	2.7/8	10,850	3/16	4,76	0,027	0,088	0,084	0,032	0,105	0,101	0,043	0,141	0,135	-	-	-	-	-	-	
2.7/8	7/8	18,000	3.1/8	1	21,000	3.3/8	1	24,750	3.1/2	3	9,250	1/4	6,35	0,037	0,123	0,118	0,045	0,150	0,143	0,064	0,212	0,203	0,080	0,264	0,253	-	-	-	
2.7/8	1	17,500	3.1/8	1.1/8	20,450	3.3/8	1.1/8	24,200	3.5/8	1/2	30,400	5/16	7,93	0,048	0,158	0,151	0,059	0,194	0,186	0,086	0,282	0,271	0,112	0,370	0,355	0,128	0,422	0,400	
2.7/8	1.1/8	16,950	3.1/8	1.1/4	19,800	3.3/8	1.1/4	23,550	3.5/8	5/8	31,150	3/8	9,52	0,059	0,193	0,185	0,072	0,238	0,228	0,107	0,353	0,338	0,144	0,475	0,455	0,171	0,563	0,510	
2.7/8	1.1/4	16,300	3.1/8	1.3/8	19,100	3.3/8	1.3/8	22,850	3.5/8	3/4	29,800	7/16	11,11	0,069	0,228	0,218	0,086	0,283	0,271	0,128	0,423	0,406	0,176	0,581	0,557	0,213	0,704	0,590	
2.7/8	1.3/8	15,600	3.1/8	1.1/2	18,300	3.3/8	1.1/2	22,050	3.5/8	7/8	29,350	1/2	12,70	0,080	0,263	0,252	0,099	0,327	0,314	0,150	0,494	0,473	0,208	0,687	0,658	0,256	0,844	0,825	
2.7/8	1.1/2	14,800	3.1/8	1.5/8	17,450	3.3/8	1.5/8	21,200	3.5/8	1	28,850	9/16	14,28	0,090	0,298	0,286	0,113	0,372	0,356	0,171	0,565	0,541	0,240	0,793	0,760	0,299	0,985	0,962	
2.7/8	1.5/8	13,950	3.1/8	1.3/4	16,500	3.3/8	1.3/4	20,250	3.5/8	1.1/8	28,300	5/8	15,87	0,101	0,333	0,319	0,126	0,416	0,399	0,193	0,635	0,609	0,272	0,898	0,860	0,341	1,130	1,100	
2.7/8	1.3/4	13,000	3.1/8	1.7/8	15,500	3.3/8	1.7/8	13,250	3.5/8	1.1/4	27,650	3/4	19,05	0,122	0,403	0,387	0,153	0,505	0,484	0,235	0,776	0,744	0,337	1,110	1,060	0,427	1,410	1,350	
2.7/8	1.7/8	12,000	3.1/8	2	14,450	3.3/8	2	18,200	3.5/8	1.3/8	26,950	7/8	22,22	0,144	0,473	0,454	0,180	0,593	0,569	0,278	0,918	0,879	0,401	1,320	1,270	0,512	1,609	1,620	
2.7/8	2	10,950	3.1/8	2.1/8	13,350	3.3/8	2.1/8	17,100	3.5/8	1.1/2	26,150	1	25,40	0,165	0,544	0,521	0,207	0,682	0,654	0,321	1,060	1,010	0,465	1,530	1,470	0,597	1,970	1,890	
2.7/8	2.1/8	9,859	3.1/8	2.1/4	12,150	3.3/8	2.1/4	15,900	3.5/8	1.3/4	24,350	1.1/8	28,57	0,186	0,614	0,588	0,234	0,771	0,739	0,374	1,200	1,150	0,553	1,740	1,670	0,683	2,250	2,160	
2.7/8	2.1/4	8,650	3.1/8	2.3/8	10,900	3.3/8	2.3/8	14,650	3.5/8	1.7/8	23,350	1.1/4	31,75	0,207	0,684	0,655	0,261	0,860	0,824	0,407	1,340	1,290	0,593	1,950	1,870	0,768	2,530	2,430	
2.7/8	2.3/8	7,400	3.1/8	2.1/2	9,500	3.3/8	2.1/2	13,250	3.5/8	2	22,300	1.1/4	31,75	0,207	0,684	0,655	0,261	0,860	0,824	0,407	1,340	1,290	0,593	1,950	1,870	0,768	2,530	2,430	
3	1/2	20,800	3.1/4	1/2	24,300	3.3/8	2.5/8	11,900	3.5/8	2.1/8	21,200	1.3/8	34,92	0,229	0,754	0,723	0,288	0,948	0,909	0,450	1,480	1,420	0,657	2,170	2,080	0,854	2,810	2,700	
3	5/8	20,550	3.1/4	5/8	24,050	3.3/8	2.3/4	9,900	3.5/8	2.1/4	20,000	1.1/2	38,10	0,250	0,824	0,790	0,315	1,040	0,994	0,492	1,620	1,560	0,721	2,380	2,280	0,939	3,100	2,970	
3	3/4	20,200	3.1/4	3/4	23,700	3.1/2	1/2	28,300	3.5/8	2.3/8	18,750	1.5/8	41,27	0,271	0,893	0,857	0,342	1,130	1,080	0,535	1,760	1,690	0,785	2,590	2,480	1,020	3,380	3,240	
3	7/8	19,750	3.1/4	7/8	23,250	3.1/2	5/8	28,050	3.5/8	2.1/2	17,350	1.3/4	44,45	0,293	0,964	0,924	0,369	1,210	1,160	0,578	1,910	1,830	0,849	2,800	2,680	1,110	3,660	3,510	
3	1	19,250	3.1/4	1	22,750	3.1/2	3/4	27,700	3.5/8	2.5/8	16,000	1.7/8	47,62	0,314	1,030	0,991	0,395	1,300	1,250	0,621	2,050	1,960	0,913	3,010	2,890	1,200	3,940	3,780	
3	1.1/8	18,700	3.1/4	1.1/8	22,200	3.1/2	7/8	27,250	3.5/8	2.3/4	14,000	2	58,80	0,334	1,100	1,060	0,422	1,390	1,330	0,664	2,190	2,100	0,977	3,220	3,090	1,280	4,220	4,050	
3	1.1/4	18,050	3.1/4	1.1/4	21,500	3.1/2	1	26,750	3.5/8	2.7/8	12,950	2.1/8	53,97	0,356	1,170	1,130	0,449	1,480	1,420	0,706	2,330	1,040	3,430	3,290	1,370	1,370	4,500	4,320	
3	1.3/8	17,350	3.1/4	1.3/8	20,850	3.1/2	1.1/8	26,200	3.5/8	3	11,350	2.1/4	57,15	0,378	1,240	1,190	0,476	1,570	1,500	0,749	2,470	2,370	1,110	3,640	3,490	1,450	4,780	4,580	
3	1.1/2	16,550	3.1/4	1.1/2	20,050	3.1/2	1.1/4	25,550	3.5/8	3.1/8	9,600	2.3/8	60,33	0,399	1,310	1,260	0,503	1,660	1,590	0,792	2,610	2,500	1,170	3,860	3,700	1,540	5,070	4,850	
3	1.5/8	15,700	3.1/4	1.5/8	19,200	3.1/2	1.3/8	24,850	3.3/4	1/2	32,550	2.1/2	63,50	0,420	1,390	1,330	0,530	1,750	1,670	0,835	2,750	2,640	1,290	4,060	3,900	1,620	5,350	5,120	
3	1.3/4	14,750	3.1/4	1.3/4	18,250	3.1/2	1.1/2	24,050	3.3/4	5/8	32,300	2.5/8	66,67	0,442	1,460	1,390	0,557	1,840	1,760	0,878	2,890	2,770	1,300	4,280	4,100	1,710	5,630	5,390	
3	1.7/8	13,750	3.1/4	1.7/8	17,250	3.1/2	1.5/8	23,200	3.3/4	3/4	31,950	2.3/4	69,85	0,463	1,530	1,460	0,584	1,930	1,850	0,921	3,030	2,910	1,360	4,490	4,300	1,790	5,910	5,660	
3	2	12,700	3.1/4	2	16,200	3.1/2	1.3/4	22,250	3.3/4	7/8	31,500	3	76,20	0,505	1,670	1,600	0,638	2,100	2,020	1,010	3,320	3,180	1,490	4,910	1,960	1,960	6,470	6,200	
3	2.1/8	11,600	3.1/4	2.1/8	15,100	3.1/2	1.7/8	21,250	3.3/4	1	31,000	3.1/4	82,55	0,549	1,807	1,728	0,693	2,305	2,177	1,091	3,599	3,441	1,619	5,392	5,212	2,133	7,111	6,874	
3	2.1/4	10,400	3.1/4	2.1/4	13,900	3.1/2	2	20,200	3.3/4	1.1/8	30,450	3.1/2	88,90	0,592	1,955	1,862	0,747	2,485	2,347	1,173	3,881	3,709	1,800	5,910	5,680	2,250	7,830	7,450	
3	2.3/8	9,150	3.1/4	2.3/8	12,650	3.1/2	2.1/8	19,100	3.3/4	1.1/4	29,800	3.3/4	95,25	0,634	2,088	1,996	0,801	2,664	2,516	1,258	4,162	3,977	1,974	6,243	6,038	2,550	8,300	7,969	
3	2.1/2	7,750	3.1/4	2.1/2	11,250	3.1/2	2.1/4	17,900	3.3/4	1.3/8	29,100	4	101,60	0,677	2,237	2,130	0,855	2,844	2,686	1,344	4,444	4,245	2,020	6,673	6,451	2,610	8,719	8,250	
3	2.5/8	6,400	3.1/4	2.5/8	9,900	3.1/2	2.3/8	16,650	3.3/4	1.1/2	28,300																		
3.1/8	1/2	22,550	3.3/8	1/2	26,300	3.1/2	2.1/2	15,250	3.3/4	1.5/8	27,450																		

# TARUGOS DE BRONZE 500mm



# BUCHAS DE BRONZE 500mm



Diâmetro Polegada	Peso kg.	Diâmetro Polegada	Peso kg.	Diâmetro Polegada	Peso kg.	Diâmetro Polegada	Peso kg.	Diâmetros			Diâmetros			Diâmetros			Diâmetros		
								Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.	Externo Polegada	Interno Polegada	Peso kg.
3/8	0,436	4.1/8	39,750	8.1/8	150,500	12.1/8	325,180	7/8	1/2	1,550	1.3/4	1/2	7,050	2.1/8	1.1/8	8,300	2.1/2	1.3/8	10,950
7/16	0,570	4.1/4	42,250	8.1/4	155,180	12.1/4	342,140	7/8	5/8	1,300	1.3/4	5/8	6,800	2.1/8	1.1/4	7,650	2.1/2	1.1/2	10,150
1/2	0,720	4.3/8	44,750	8.3/8	159,910	12.3/8	349,140	1	1/2	2,100	1.3/4	3/4	6,450	2.1/8	1.3/8	6,950	2.1/2	1.5/8	9,300
9/12	0,900	4.1/2	47,250	8.1/2	164,720	12.1/2	356,240	1	5/8	1,850	1.3/4	7/8	6,000	2.1/8	1.1/2	6,150	2.1/2	1.3/4	8,350
5/8	1,080	4.5/8	50,000	8.5/8	169,600	12.5/8	363,390	1	3/4	1,500	1.3/4	1	5,500	2.1/8	1.5/8	5,300	2.1/2	1.7/8	7,350
3/4	1,500	4.3/4	52,650	8.3/4	174,560	12.3/4	370,640	1.1/8	1/2	2,750	1.3/4	1.1/8	4,950	2.1/4	1/2	11,650	2.1/2	2	6,300
7/8	2,000	4.7/8	55,500	8.7/8	176,500	12.7/8	377,930	1.1/8	5/8	2,500	1.3/4	1.1/4	4,300	2.1/4	5/8	11,400	2.5/8	1/2	16,400
1	2,550	5	58,250	9	184,670	13	385,310	1.1/8	3/4	2,150	1.3/4	1.3/8	3,600	2.1/4	3/4	11,050	2.5/8	5/8	16,150
1.1/8	3,200	5.1/8	61,100	9.1/8	189,930	13.1/4	400,000	1.1/8	7/8	1,700	1.3/4	1.1/2	2,800	2.1/4	7/8	10,600	2.5/8	3/4	15,800
1.1/4	3,900	5.1/4	64,100	9.1/4	195,080	13.1/2	416,000	1.1/4	1/2	3,450	1.7/8	1/2	8,100	2.1/4	1	10,100	2.5/8	7/8	15,350
1.3/8	4,700	5.3/8	67,100	9.3/8	200,380	13.3/4	431,000	1.1/4	5/8	3,200	1.7/8	5/8	7,850	2.1/4	1.1/8	9,550	2.5/8	1	14,850
1.1/2	5,550	5.1/2	70,250	9.1/2	205,760	14	447,000	1.1/4	3/4	2,850	1.7/8	3/4	7,500	2.1/4	1.1/4	8,900	2.5/8	1.1/8	14,300
1.5/8	6,500	5.5/8	73,400	9.5/8	211,210	14.1/4	463,000	1.1/4	7/8	2,400	1.7/8	7/8	7,050	2.1/4	1.3/8	8,200	2.5/8	1.1/4	13,650
1.3/4	7,500	5.3/4	76,600	9.3/4	216,740	14.1/2	480,000	1.1/4	1	1,900	1.7/8	1	6,550	2.1/4	1.1/2	7,400	2.5/8	1.3/8	12,950
1.7/8	8,550	5.7/8	80,000	9.7/8	222,320	14.3/4	495,000	1.3/8	1/2	4,250	1.7/8	1.1/8	6,000	2.1/4	1.5/8	6,550	2.5/8	1.1/2	12,150
2	9,650	6	83,250	10	227,990	15	513,000	1.3/8	5/8	4,000	1.7/8	1.1/4	5,350	2.1/4	1.3/4	5,600	2.5/8	1.5/8	11,300
2.1/8	10,850	6.1/8	85,530	10.1/8	233,720	15.1/4	530,000	1.3/8	3/4	3,650	1.7/8	1.3/8	4,650	2.1/4	1.7/8	4,600	2.5/8	1.3/4	10,350
2.1/4	12,100	6.1/4	89,060	10.1/4	239,540	15.1/2	548,000	1.3/8	7/8	3,200	1.7/8	1.1/2	3,850	2.3/8	5/8	12,800	2.5/8	1.7/8	9,350
2.3/8	13,500	6.3/8	92,650	10.3/8	245,410	15.3/4	565,000	1.3/8	1	2,700	1.7/8	1.5/8	3,000	2.3/8	3/4	12,450	2.5/8	2	8,300
2.1/2	14,850	6.1/2	96,330	10.1/2	251,360	16	584,000	1.3/8	1.1/8	2,150	2	1/2	9,200	2.3/8	7/8	12,000	2.5/8	2.1/8	7,200
2.5/8	16,850	6.5/8	100,060	10.5/8	251,380	16.1/4	602,000	1.1/2	1/2	5,100	2	5/8	8,950	2.3/8	1	11,500	2.3/4	1/2	17,450
2.3/4	17,900	6.3/4	103,880	10.3/4	263,480	16.1/2	621,000	1.1/2	5/8	4,850	2	3/4	8,600	2.3/8	1.1/8	10,950	2.3/4	5/8	17,200
2.7/8	19,500	6.7/8	107,750	10.7/8	269,630	16.3/4	640,000	1.1/2	3/4	4,500	2	7/8	8,150	2.3/8	1.1/4	10,300	2.3/4	3/4	16,850
3	21,250	7	111,710	11	245,870	17	660,000	1.1/2	7/8	4,050	2	1	7,650	2.3/8	1.3/8	9,600	2.3/4	7/8	16,400
3.1/8	23,000	7.1/8	115,730	11.1/8	282,170	17.1/2	700,000	1.1/2	1	3,550	2	1.1/8	7,100	2.3/8	1.1/2	8,800	2.3/4	1	15,900
3.1/4	24,750	7.1/4	119,840	11.1/4	288,560	18	740,000	1.1/2	1.1/8	3,000	2	1.1/4	6,450	2.3/8	1.5/8	7,950	2.3/4	1.1/8	15,350
3.3/8	26,750	7.3/8	124,000	11.3/8	294,990	18.1/2	780,000	1.1/2	1.1/4	2,350	2	1.3/8	5,750	2.3/8	1.3/4	7,000	2.3/4	1.1/4	14,700
3.1/2	28,750	7.1/2	128,240	11.1/2	301,520	19	824,000	1.5/8	1/2	6,050	2	1.1/2	4,950	2.3/8	1.7/8	6,000	2.3/4	1.3/8	14,000
3.5/8	30,850	7.5/8	132,550	11.5/8	308,100	19.1/2	870,000	1.5/8	5/8	5,800	2	1.5/8	4,100	2.1/2	1/2	14,400	2.3/4	1.1/2	13,200
3.3/4	33,000	7.3/4	136,940	11.3/4	321,780	20	915,000	1.5/8	3/4	5,450	2	1.3/4	3,150	2.1/2	5/8	14,150	2.3/4	1.5/8	12,350
3.7/8	35,250	7.7/8	141,380	11.7/8	321,500	21	1.005,000	1.5/8	7/8	5,000	2.1/8	1/2	10,400	2.1/2	3/4	13,200	2.3/4	1.3/4	11,400
4	37,500	8	145,910	12	328,510	22	1.103,000	1.5/8	1	4,500	2.1/8	5/8	10,150	2.1/2	7/8	13,350	2.3/4	1.7/8	10,400
								1.5/8	1.1/8	3,950	2.1/8	3/4	9,800	2.1/2	1	12,850	2.3/4	2	9,350
								1.5/8	1.1/4	3,300	2.1/8	7/8	9,350	2.1/2	1.1/8	12,300	2.3/4	2.1/8	8,250
								1.5/8	1.3/8	2,600	2.1/8	1	8,850	2.1/2	1.1/4	11,650	2.3/4	2.1/4	7,050