

## 4. LINHA ESTRUTURAL

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## 4.1 Parafuso Sextavado ASTM A-325

Parafuso de Alta Resistência para Estrutura - Chave Pesada

Dimensões - ANSI B 18.2.6 / Rosca - UNC - ANSI B 1.1 - Tolerância 2A



PREÇOS BRUTOS POR CENTO EM REAIS														
DIMENSIONAL NOMINAL		1/2"		5/8"		3/4"		7/8"		1"				
FIOS POR POLEGADA		13		11		10		9		8				
CA- BEÇA	CHAVE	7/8"		1.1/16"		1.1/4"		1.7/16"		1.5/8"				
	ALTURA (máx.)	8,20		10,23		12,26		14,30		15,92				
COMPRI. DA ROSCA		1"		1.1/4"		1.3/8"		1.1/2"		1.3/4"				
COMPRIMENTO														
1.1/4"		5.585	152,97	1	7.166	253,47	0.5	7.165	397,89	0.5				
1.1/2"		5.586	168,59	1	5.594	282,95	0.5	7.164	439,16	0.5				
1.3/4"		5.587	185,98	1	5.595	312,42	0.5	5.603	480,42	0.5	5.613	748,42	0.2	8.010 978,95 0.1
2"		5.588	204,84	1	5.596	340,42	0.5	5.604	521,68	0.5	5.614	808,42	0.2	7.200 1.105,26 0.1
2.1/4"		5.589	223,41	0.5	5.597	372,84	0.5	5.605	562,95	0.5	5.615	865,26	0.2	5.623 1.168,42 0.1
2.1/2"		5.590	241,68	0.5	5.598	397,89	0.5	5.606	607,16	0.5	5.616	928,42	0.2	5.624 1.253,68 0.1
2.3/4"		5.591	260,84	0.5	5.599	427,37	0.5	5.607	648,42	0.5	5.617	991,58	0.2	5.625 1.326,32 0.1
3"		5.592	278,53	0.5	5.600	456,84	0.2	5.608	689,68	0.2	5.618	1.051,58	0.2	5.626 1.411,58 0.1
3.1/4"					8.473	486,32	0.2	7.109	728,00	0.2	7.991	1.108,42	0.2	7.115 1.484,21 0.1
3.1/2"		5.593	315,37	0.5	5.601	514,32	0.2	5.609	769,26	0.2	5.619	1.168,42	0.2	5.627 1.553,68 0.1
3.3/4"								7.177	810,53	0.2	7.309	1.237,89	0.2	7.117 1.642,11 0.1
4"		7.997	334,52	0.5	5.602	571,79	0.2	5.610	851,79	0.2	5.620	1.297,89	0.2	5.628 1.705,26 0.1
4.1/4"								84.495	896,00	0.2	8.001	1.351,58	0.2	7.670 1.793,68 0.1
4.1/2"					9.217	648,42	0.2	5.611	937,26	0.2	5.621	1.408,42	0.2	5.629 1.869,47 0.1
4.3/4"		8.351	397,01	0.5				9.136	980,00	0.2	7.113	1.481,05	0.2	8.481 1.973,68 0.1
5"					9.223	676,13	0.2	5.612	1.022,74	0.2	5.622	1.534,74	0.2	5.630 2.021,05 0.1
5.1/2"					8.386	757,47	0.2	8.058	1.125,01	0.2	9.209	1.585,26	0.2	5.631 2.194,74 0.1
6"					9.224	778,99	0.2	9.212	1.149,47	0.2	9.210	1.705,26	0.2	5.632 2.358,95 0.1
7"								9.225	1.335,75	0.2	9.226	1.948,83	0.1	8.478 2.752,11 0.1
8"											9.227	2.221,89	0.1	8.476 3.145,26 0.1

Obs.: Preços para parafusos Polidos

## 4.1 Parafuso Sextavado ASTM-A325

Parafuso de Alta Resistência para Estrutura - Chave Pesada

Dimensões - ANSI B 18.2.6 / Rosca - UNC ANSI B 1.1 - Tolerância 2A



PREÇOS BRUTOS POR CENTO EM REAIS													
DIMENSIONAL NOMINAL		1.1/8"		1.1/4"		1.3/8"		1.1/2"					
FIOS POR POLEGADA		7		7		6		6					
CABEÇA	CHAVE	1.13/16"		2"		2.3/16"		2.3/8"					
	ALTURA (máx.)	18,23		20,65		22,30		24,73					
COMPRIMENTO DA ROSCA		2"		2"		2.1/4"		2.1/4"					
COMPRIMENTO													
2.1/4"		7.770	1.797,89	0.1	7.665	2.357,89	0.1						
2.1/2"		7.661	1.915,79	0.1	7.778	2.505,26	0.1						
2.3/4"		7.771	2.026,32	0.1	7.779	2.652,63	0.1	7.785	3.315,79	0.05	7.793	4.126,32	0.05
3"		7.772	2.147,89	0.1	7.780	2.800,00	0.1	7.786	3.463,16	0.05	7.284	4.347,37	0.05
3.1/2"		7.662	2.387,37	0.1	6.561	3.094,74	0.1	7.787	3.831,58	0.05	7.794	4.752,63	0.05
4"		7.773	2.615,79	0.1	6.562	3.389,47	0.05	7.788	4.181,58	0.05	7.795	5.176,32	0.05
4.1/2"		7.774	2.855,26	0.1	7.781	3.665,79	0.05	7.789	4.531,58	0.05	7.796	5.563,16	0.05
5"		7.775	3.094,74	0.1	7.782	3.942,11	0.05	7.790	4.900,00	0.05	7.797	6.005,26	0.05
5.1/2"		7.776	3.317,63	0.1	7.783	4.218,42	0.05	7.791	5.250,00	0.05	7.798	6.410,53	0.05
6"		7.777	3.555,26	0.05	7.784	4.531,58	0.05	7.792	5.600,00	0.05	7.799	6.852,63	0.05

Obs.: Preços para parafusos polidos.



Desconto:

LINHA ESTRUTURAL

PÁG. D1

## 4.2 Parafuso Sextavado ASTM - A325

### RI - Rosca Inteira

Parafuso de Alta Resistência para Estruturas - Chave Pesada

Dimensões - ANSI B 18.2.6



PREÇOS BRUTOS POR CENTO EM REAIS																
DIM. NOMINAL		1/2"			5/8"			3/4"			7/8"			1"		
FIOS POR POL.		13			11			10			9			8		
CABEÇA	CHAVE	7/8"			1.1/16"			1.1/4"			1.7/16"			1.5/8"		
	ALTURA (máx.)	8,20			10,23			12,26			14,30			15,92		
COMPRIMENTO																
1.1/4"		8.352	180,31	1	57.825	291,49	0.5	57.829	457,58	0.5						
1.1/2"		37.469	198,72	1	57.826	325,39	0.5	57.830	505,03	0.5						
1.3/4"		57.821	200,63	1	88.952	359,28	0.5	57.831	552,48	0.5	57.835	910,41	0.2	57.842	1.050,74	0.1
2"		9.316	206,55	1	89.428	391,48	0.5	88.035	599,94	0.5	39.211	983,40	0.2	57.843	1.186,32	0.1
2.1/4"		39.210	225,27	0.5	39.212	372,84	0.5	89.427	647,39	0.5	37.430	1.052,54	0.2	57.844	1.254,11	0.1
2.1/2"		9.317	243,70	0.5	9.320	397,89	0.5	89.407	698,23	0.5	37.431	1.086,84	0.2	89.384	1.345,62	0.1
2.3/4"		57.822	263,02	0.5	57.827	427,37	0.5	57.832	745,68	0.5	57.836	1.101,75	0.2	89.383	1.423,58	0.1
3"		9.318	280,85	0.5	39.209	456,84	0.2	39.208	793,14	0.2	57.837	1.168,42	0.2	89.406	1.515,09	0.1
3.1/2"		9.319	318,00	0.5	9.321	514,32	0.2	89.209	884,65	0.2	57.838	1.298,25	0.2	57.845	1.667,62	0.1
4"		57.823	337,31	0.5	57.828	571,79	0.2	57.250	979,56	0.2	57.839	1.442,11	0.2	57.846	1.830,32	0.1

### 4.3 Porca Sextavada ASTM A194-2H

Porca Pesada para Estrutura

Dimensões - ANSI B 18.2.2

Rosca - UNC - ANSI B 1.1 - Tolerância 2B



PREÇOS BRUTOS POR CENTO EM REAIS											
BITOLA	UNC				UN		CHAVE	ALTURA		EMBALAGEM CENTO (S)	PREÇOS UNC/UN - R\$
	FIOS POL.	CÓDIGO			FIOS POL.	CÓDIGO		MÍNIMA	MÁXIMA		
		PO	ZB	BC							
1/2"	13	5.638	25.638	45.638	-	-	7/8"	11,79	12,80	10	99,71
5/8"	11	5.639	25.639	45.639	-	-	1.1/16"	14,91	16,03	5	181,56
3/4"	10	5.640	25.640	45.640	-	-	1.1/4"	18,03	19,25	3	294,40
7/8"	9	5.641	25.641	45.641	-	-	1.7/16"	21,16	22,48	2	453,05
1"	8	5.642	25.642	45.642	-	-	1.5/8"	24,28	25,70	1	601,26
1.1/8"	7	7.816	27.816	47.816	8	9.329	1.13/16"	27,41	28,93	0.20	963,00
1.1/4"	7	6.563	26.563	46.563	8	9.310	2"	30,15	31,78	0.20	1.309,31
1.3/8"	6	7.817	27.817	47.817	8	9.309	2.3/16"	33,27	35,00	0.20	1.790,03
1.1/2"	6	6.567	26.567	46.567	8	9.331	2.3/8"	36,40	38,23	0.20	3.826,53
1.5/8"	5	11.387	11.388	11.389	8	9.332	2.9/16"	39,52	41,45	0.30	4.938,11
1.3/4"	5	10.989	11.390	10.802	8	9.334	2.3/4"	42,65	44,67	0.25	6.224,84
1.7/8"	4,5	11.391	11.392	11.393	8	9.333	2.15/16"	45,77	47,90	0.20	7.356,63
2"	4,5	10.820	11.394	10.871	8	9.328	3.1/8"	48,89	51,13	0.15	8.380,63
2.1/4"	4,5	11.000	11.395	11.396	8	9.368	3.1/2"	54,74	57,17	0.10	12.261,05
2.1/2"	4	11.002	11.397	11.398	8	9.369	3.7/8"	60,98	63,93	0.08	16.370,53
2.3/4"	4	11.399	11.400	11.401	8	9.404	4.1/4"	67,23	70,08	0.06	22.521,26
3"	4	11.403	11.404	11.405	8	9.405	4.5/8"	73,48	76,53	0.05	28.995,37
3.1/4"	4	11.406	11.407	11.408	8	9.406	5"	79,35	82,60	0.04	36.446,32
3.1/2"	4	11.409	11.410	11.411	8	9.407	5.3/8"	85,60	89,05	0.03	46.551,58
3.3/4"	4	11.412	11.413	11.414	8	9.408	5.3/4"	91,85	95,50	0.02	55.309,47
4"	4	11.415	11.416	11.417	8	9.409	6.1/8"	98,10	101,95	0.02	66.560,00

### 4.4 Arruela Lisa ASTM - F436

Para Estrutura

Temperada



PREÇOS BRUTOS POR CENTO EM REAIS										
BITOLA	CÓDIGO	DIÂM. DO FURO		DIÂM. EXTERNO		EXPESSURA		EMBALAGEM CENTOS	PREÇOS	
		MÍM.	MÁX.	MÍM.	MÁX.	MÍM.	MÁX.			
1/2"	5.633	13,50	14,30	26,20	33,30	2,5	4,5	2	120,21	
5/8"	5.634	17,46	18,26	32,50	39,60	3,1	4,5	1	139,04	
3/4"	5.635	20,65	21,40	36,50	43,60	3,1	4,5	1	163,18	
7/8"	5.636	23,80	24,60	43,60	50,70	3,5	4,5	1	238,74	
1"	5.637	28,60	29,40	50,00	57,10	3,5	4,5	1	334,74	
1.1/8"	7.818	31,80	32,60	56,40	63,40	3,5	4,5	0.2	674,27	
1.1/4"	6.564	34,90	35,70	62,70	69,80	3,5	4,5	0.2	874,24	
1.3/8"	7.819	38,10	38,90	69,10	76,10	3,5	4,5	0.2	1.089,09	
1.1/2"	7.820	41,30	42,10	75,40	82,50	3,5	4,5	0.2	1.278,18	
1.3/4"	9.313	47,62	49,20	84,14	87,30	4,5	7,1	0.2	1.583,33	
2"	9.314	53,97	55,55	93,67	96,83	4,5	7,1	0.2	2.216,66	



Desconto:

LINHA ESTRUTURAL

PÁG. D3

## 4.5 Parafuso Sextavado ASTM A-490

Parafuso de Alta Resistência para Estrutura - Chave Pesada

Dimensões - ANSI B 18.2.6 / Rosca - UNC - ANSI B 1.1 - Tolerância 2A



PREÇOS BRUTOS POR CENTO EM REAIS																
DIMENSIONAL NOMINAL		1/2"		5/8"		3/4"		7/8"		1"						
FIOS POR POLEGADA		13		11		10		9		8						
CA- BEÇA	CHAVE	7/8"		1.1/16"		1.1/4"		1.7/16"		1.5/8"						
	ALTURA (máx.)	8,20		10,23		12,26		14,30		15,92						
COMPRIMENTO DA ROSCA		1"		1.1/4"		1.3/8"		1.1/2"		1.3/4"						
COMPRIMENTO																
1.1/4"		58.455	198,86	1	58.466	329,52	0.5	58.480	517,26	0.5						
1.1/2"		58.456	219,17	1	58.467	367,83	0.5	58.481	570,91	0.5						
1.3/4"		58.457	241,77	1	58.468	406,15	0.5	58.482	624,55	0.5	58.500	972,95	0.2	58.511	1.272,63	0.1
2"		58.458	266,29	1	58.469	442,55	0.5	58.483	678,19	0.5	89.252	1.050,95	0.2	58.512	1.436,84	0.1
2.1/4"		58.459	290,43	0.5	58.470	484,69	0.5	58.484	731,83	0.5	89.255	1.124,84	0.2	58.513	1.518,95	0.1
2.1/2"		58.460	314,19	0.5	58.471	517,26	0.5	58.485	789,31	0.5	89.256	1.206,95	0.2	38.032	1.629,79	0.1
2.3/4"		58.461	339,09	0.5	58.472	555,58	0.5	58.486	842,95	0.5	89.257	1.289,05	0.2	38.030	1.724,21	0.1
3"		58.462	362,08	0.5	58.473	593,89	0.2	58.487	896,59	0.2	89.258	1.367,05	0.2	89.248	1.835,05	0.1
3.1/4"					58.499	632,21	0.2	58.488	946,40	0.2	58.501	1.440,95	0.2	58.514	1.919,47	0.1
3.1/2"		58.463	409,98	0.5	58.474	668,61	0.2	58.489	1.000,04	0.2	58.502	1.518,95	0.2	57.910	2.019,79	0.1
3.3/4"								58.490	1.053,68	0.2	89.253	1.609,26	0.2	89.249	2.134,74	0.1
4"		58.464	434,88	0.5	58.475	743,33	0.2	58.491	1.107,33	0.2	89.254	1.687,26	0.2	89.250	2.216,84	0.1
4.1/4"								58.492	1.164,80	0.2	58.503	1.757,05	0.2	89.291	2.331,79	0.1
4.1/2"					58.476	842,95	0.2	58.493	1.218,44	0.2	58.504	1.830,95	0.2	58.515	2.430,32	0.1
4.3/4"		58.465	516,11	0.5				58.494	1.274,00	0.2	58.505	1.925,37	0.2	89.251	2.565,79	0.1
5"					58.477	878,96	0.2	58.495	1.329,56	0.2	58.506	1.995,16	0.2	38.031	2.627,37	0.1
5.1/2"					58.478	984,96	0.2	58.496	1.462,51	0.2	58.507	2.060,84	0.2	58.516	2.853,16	0.1
6"					58.479	1.102,69	0.2	58.497	1.494,32	0.2	58.508	2.216,84	0.2	58.517	3.066,63	0.1
7"								58.498	1.736,47	0.2	58.509	2.533,48	0.1	58.518	3.577,74	0.1
8"											58.510	2.888,46	0.1	58.519	4.088,84	0.1

Obs.: Preços para parafusos Enegrécidos de Têmpera

## 4.5 Parafuso Sextavado ASTM A-490

Parafuso de Alta Resistência para Estrutura - Chave Pesada

Dimensões - ANSI B 18.2.6 / Rosca - UNC ANSI B 1.1 - Tolerância 2A



PREÇOS BRUTOS POR CENTO EM REAIS													
DIMENSIONAL NOMINAL		1.1/8"		1.1/4"		1.3/8"		1.1/2"					
FIOS POR POLEGADA		7		7		6		6					
CABEÇA	CHAVE	1.13/16"		2"		2.3/16"		2.3/8"					
	ALTURA (máx.)	18,23		20,65		22,30		24,73					
COMPRIMENTO DA ROSCA		2"		2"		2.1/4"		2.1/4"					
COMPRIMENTO													
2.1/4"		58.520	2.337,26	0.1	58.530	3.065,26	0.1						
2.1/2"		58.521	2.490,53	0.1	58.531	3.256,84	0.1						
2.3/4"		58.522	2.634,21	0.1	58.532	3.448,42	0.1	58.540	4.310,53	0.05	58.548	5.364,21	0.05
3"		58.523	2.792,26	0.1	58.533	3.640,00	0.1	58.541	4.502,11	0.05	58.549	5.651,58	0.05
3.1/2"		58.524	3.103,58	0.1	58.534	4.023,16	0.1	58.542	4.981,05	0.05	58.550	6.178,42	0.05
4"		58.525	3.400,53	0.1	58.535	4.406,32	0.05	58.543	5.436,05	0.05	58.551	6.729,21	0.05
4.1/2"		58.526	3.711,84	0.1	58.536	4.765,53	0.05	58.544	5.891,05	0.05	58.552	7.232,11	0.05
5"		58.527	4.023,16	0.1	58.537	5.124,74	0.05	58.545	6.370,00	0.05	58.553	7.806,24	0.05
5.1/2"		58.528	4.312,92	0.1	58.538	5.483,95	0.05	58.546	6.825,00	0.05	58.554	8.333,68	0.05
6"		58.529	4.621,84	0.05	58.539	5.891,05	0.05	58.547	7.280,00	0.05	58.555	8.908,42	0.05

Obs.: Preços para parafusos Enegrécidos de Têmpera

## 4.6 Parafuso Sextavado ASTM - A307 - B

Chave Pesada

Dimensões - ANSI B 18.2.1

Rosca - UNC - ANSI B 1.1 - Tolerância 2A

Acima da linha em Negrito (RI) - Abaixo (RP)



PREÇOS BRUTOS POR CENTO EM REAIS																
DIMENSIONAL NOMINAL		1/2"			5/8"			3/4"			7/8"			1"		
FIOS POR POLEGADA		13			11			10			9			8		
CABEÇA	CHAVE	7/8"			1.1/16"			1.1/4"			1.7/16"			1.5/8"		
	ALTURA (máx.)	8,20			10,23			12,26			14,30			15,92		
COMPRIMENTO DA ROSCA		1.1/4"			1.1/2"			1.3/4"			2"			2.1/4"		
COMPRIMENTO																
1.1/4"		9241	120,01	1	9253	204,67	0.5									
1.1/2"		9242	131,26	1	9254	235,44	0.5	9265	348,10	0.5						
1.3/4"		9243	140,11	1	9255	247,21	0.5	9266	376,70	0.5	9276	608,87	0.2			
2"		9244	157,62	1	9256	262,84	0.5	9267	409,89	0.5	9277	639,39	0.2			
2.1/4"		9245	171,63	0.5	9257	282,53	0.5	9268	435,37	0.5	9278	682,69	0.2	9292	719,38	0.1
2.1/2"		9246	186,81	0.5	9258	289,47	0.5	9269	472,19	0.5	9279	715,81	0.2	9293	773,13	0.1
2.3/4"		9247	206,89	0.5	9259	324,21	0.5	9270	490,95	0.5	9280	823,32	0.2	9294	826,62	0.1
3"		9248	222,30	0.5	9260	347,37	0.2	9271	521,05	0.2	9281	873,98	0.2	9295	1.018,95	0.1
3.1/4"		9249	228,84	0.5	9261	370,53	0.2	9272	555,09	0.2	9282	924,63	0.2	9296	1.255,69	0.1
3.1/2"		9250	242,85	0.5	9262	404,11	0.2	9273	578,95	0.2	9283	929,09	0.2	9297	1.153,26	0.1
3.3/4"		9251	267,37	0.5	9263	423,56	0.2	9274	613,68	0.2	9284	994,71	0.2	9298	1.182,11	0.1
4"		9252	270,87	0.5	9264	446,02	0.2	9275	656,53	0.2	9285	1.039,33	0.2	9299	1.194,95	0.1
4.1/4"											9286	1.126,99	0.2	9300	1.255,16	0.1
4.1/2"											9287	1.177,64	0.2	9301	1.310,74	0.1
4.3/4"											9288	1.186,30	0.2	9302	1.447,37	0.1
5"											9289	1.236,17	0.2	9303	1.482,11	0.1
5.1/2"											9290	1.317,53	0.2	9304	1.609,47	0.1
6"											9291	1.417,26	0.2	9305	1.681,26	0.1

## 4.7 Porca Sextavada Pesada

Dimensões - ANSI B 18.2.2

Rosca - UNC - ANSI B 1.1 / BSW : BS84 (\*) - Classe 2B



PREÇOS BRUTOS POR CENTO EM REAIS							
BITOLA	CÓDIGO	CHAVE	FIOS POR POLEGADA	ALTURA (mm)		EMBALAGEM (cento)	PREÇOS
				MÍNIMO	MÁXIMO		
5/16"	6.210	9/16"	18	7,11	7,97	5	15,19
3/8"	6.039	11/16"	16	8,66	9,57	5	30,11
1/2"	6.089	7/8"	13	11,78	12,80	2	65,07
1/2"(*)	6.572	7/8"	12	11,78	12,80	2	71,33
5/8"	6.090	1.1/16"	11	14,91	16,02	1	115,33
3/4"	6.091	1.1/4"	10	18,03	19,25	0.5	186,19
7/8"	6.092	1.7/16"	9	21,15	22,47	0.5	320,97
1"	8.223	1.5/8"	8	24,28	25,70	0.5	446,30
1.1/8"	8.224	1.13/16"	7	27,41	28,93	0.2	657,80
1.1/4"	8.225	2"	7	30,15	31,77	0.2	861,80
1.3/8"	9.382	2.3/16"	6	33,28	35,00	0.2	1.278,32
1.1/2"	10.754	2.3/8"	6	36,40	38,22	0.2	1.518,00
1.5/8"	11.418	2.9/16"	5	39,52	41,45	0.20	3.394,95
1.3/4"	11.419	2.3/4"	5	42,65	44,67	0.20	4.279,58
1.7/8"	11.420	2.15/16"	4,5	45,77	47,90	0.20	5.057,68
2"	11.421	3.1/8"	4,5	48,89	51,17	0.15	6.275,79
2.1/4"	11.422	3.1/2"	4,5	54,74	57,17	0.10	8.790,74
2.1/2"	11.423	3.7/8"	4	60,98	63,93	0.08	11.833,68
2.3/4"	11.424	4.1/4"	4	67,23	70,08	0.06	15.483,37
3"	11.425	4.5/8"	4	73,48	76,53	0.05	19.934,32
3.1/4"	11.426	5"	4	79,35	82,60	0.04	25.056,84
3.1/2"	11.427	5.3/8"	4	85,60	89,05	0.03	32.004,21
3.3/4"	11.428	5.3/4"	4	91,85	95,50	0.02	38.025,26
4"	11.429	6.1/8"	4	98,10	108,95	0.02	45.760,00

## 4.8 Parafuso Sextavado

### ASTM - A394 TO

Dimensões - ANSI B 18.2.1

Rosca - UNC - ANSI B 1.1

Zincado a Fogo - Sem Rebaixo na Rosca

Para Torre de Transmissão



PREÇOS BRUTOS POR CENTO EM REAIS																
DIMENSIONAL NOMINAL		1/2"			5/8"			3/4"			7/8"			1"		
FIOS POR POL.		13			11			10			9			8		
CABEÇA	CHAVE	3/4"			15/16"			1.1/8"			1.5/16"			1.1/2"		
	ALTURA (máx.)	8,20			10,23			12,26			14,30			15,93		
COMPRIMENTO DA ROSCA		1.1/4"			1.1/2"			1.3/4"			2"			2.1/4"		
COMPRIMENTO																
1"		81.925	128,52	1	81.940	230,73	1	81.952	413,52	0.5						
1.1/4"		77.471	144,97	1	78.245	251,71	1	81.953	434,17	0.5						
1.1/2"		77.472	161,42	1	77.474	275,68	0.5	81.954	451,49	0.5	81.969	682,30	0.5	81.987	1.048,17	0.2
1.3/4"		77.473	180,30	1	77.475	299,65	0.5	78.246	467,45	0.5	81.970	738,34	0.5	81.988	1.117,39	0.2
2"		78.240	196,27	1	77.476	324,21	0.5	77.104	495,16	0.5	81.971	781,35	0.2	81.989	1.167,16	0.2
2.1/4"		78.053	215,75	0.5	77.477	350,74	0.5	77.965	533,47	0.5	81.972	829,98	0.2	81.990	1.238,48	0.2
2.1/2"		81.926	233,73	0.5	78.054	380,21	0.5	77.964	574,74	0.5	81.973	891,58	0.2	81.991	1.316,29	0.2
2.3/4"		81.927	251,71	0.5	78.131	409,68	0.5	81.955	613,05	0.5	78.247	949,94	0.2	81.992	1.394,11	0.2
3"		81.928	272,68	0.5	81.941	436,21	0.2	81.956	654,32	0.2	81.974	1.011,54	0.2	81.993	1.468,67	0.1
3.1/4"		81.929	290,66	0.5	81.942	462,74	0.2	81.957	695,58	0.2	81.975	1.073,14	0.2	81.994	1.556,21	0.1
3.1/2"		81.930	310,14	0.5	78.337	492,21	0.2	81.958	736,84	0.2	81.976	1.137,98	0.2	81.995	1.627,54	0.1
3.3/4"		81.931	329,61	0.5	81.943	518,74	0.2	81.959	775,16	0.2	81.977	1.196,34	0.2	81.996	1.718,32	0.1
4"		78.336	347,59	0.5	78.338	548,21	0.2	81.960	819,37	0.2	81.978	1.257,94	0.2	81.997	1.789,64	0.1
4.1/4"		81.932	420,41	0.5	81.944	635,45	0.2	81.961	857,68	0.2	81.979	1.447,92	0.2	81.998	2.050,63	0.1
4.1/2"		81.933	441,08	0.5	81.945	664,63	0.2	81.962	988,84	0.2	81.980	1.515,68	0.2	81.999	2.146,92	0.1
4.3/4"		81.934	461,76	0.5	81.946	693,81	0.2	81.963	1.030,99	0.2	81.981	1.579,88	0.2	82.000	2.228,95	0.1
5"		81.935	485,88	0.5	81.947	726,23	0.2	81.964	1.076,38	0.2	81.982	1.647,64	0.2	82.001	2.264,61	0.1
5.1/4"		81.936	510,00	0.5	81.948	758,65	0.2	81.965	1.121,77	0.2	81.983	1.729,66	0.2	82.002	2.310,97	0.1
5.1/2"		81.937	534,12	0.5	81.949	787,83	0.2	81.966	1.167,16	0.2	81.984	1.790,29	0.2	82.003	2.414,40	0.1
5.3/4"		81.938	558,25	0.5	81.950	817,01	0.2	81.967	1.212,55	0.2	81.985	1.858,05	0.2	82.004	2.496,42	0.1
6"		81.939	582,37	0.5	81.951	846,19	0.2	81.968	1.254,69	0.2	81.986	1.925,81	0.2	82.005	2.585,58	0.1

Obs.: Parafusos com comprimentos de rosca especiais, venda sob consulta.

## 4.9 Parafuso Sextavado Classe 5.8

Dimensões: Acima da Linha em Negrito ISO 4018 (RI)

Abaixo da Linha em Negrito ISO 4016 (RP)

Rosca - MA - DIN - 13

Zincado a Fogo - Sem Rebaixo na Rosca



PREÇOS BRUTOS POR CENTO EM REAIS									
DIMENSIONAL NOMINAL		M-12			M-16			M-20	
PASSO		1,75			2,00			2,50	
CABEÇA	CHAVE	18			24			30	
	ALTURA (máx.)	7,5			10,0			12,5	
COMPR. MÍNIMO DA ROSCA (mm)	ATÉ 125	30,00			38,00			46,00	
	125 A 200				44,00			52,00	
COMPRIMENTO (mm)									
30	81.872	114,21	1	81.886	230,43	0.5			
35	81.873	131,27	1	81.887	251,71	0.5			
40	81.874	143,14	1	81.888	270,28	0.5	81.903	510,90	0.5
45	81.875	156,85	1	81.889	293,66	0.5	81.904	547,16	0.5
50	81.876	159,29	1	81.890	303,58	0.5	81.905	590,06	0.5
55	81.877	182,79	0.5	81.891	336,00	0.5	81.906	635,45	0.5
60	81.878	201,66	0.5	81.892	362,53	0.5	81.907	661,39	0.2
65	81.879	210,65	0.5	81.893	409,68	0.5	81.908	680,84	0.2
70	81.880	223,84	0.5	81.894	429,68	0.5	81.909	732,72	0.2
80	81.881	250,81	0.5	81.895	456,84	0.5	81.910	836,46	0.2
90	81.882	277,77	0.5	81.896	504,00	0.5	81.911	904,55	0.2
100	81.883	304,74	0.5	81.897	548,21	0.2	81.912	982,36	0.2
110	81.884	381,47	0.5	81.898	654,91	0.2	81.913	1.237,51	0.2
120	81.885	412,48	0.5	81.899	707,10	0.2	81.914	1.323,10	0.2
130				81.900	745,68	0.2	81.915	1.410,83	0.2
140				81.901	797,56	0.2	81.916	1.497,85	0.2
150				81.902	849,43	0.2	81.917	1.587,01	0.2
160							81.918	1.925,54	0.2
170							81.919	2.026,02	0.2
180							81.920	2.126,92	0.2
190							81.921	2.226,99	0.2
200							81.922	2.328,70	0.2

## 4.10 Parafuso Cabeça Quadrada com Porca Quadrada

Rosca - MA - DIN 13

Zincado a Fogo - Parafuso - Sem Rebaixo na Rosca / Porca - Rosca Repassada



PREÇOS BRUTOS POR CENTO EM REAIS													
DIMENSIONAL NOMINAL		M-12				M-16				M-20			
PASSO		1,75				2,00				2,50			
CABEÇA DO PARAFUSO	CHAVE	19				24				28			
	ALTURA (máx.)	9,50				11,50				14,00			
PORCA	CHAVE	19				24				30			
	ALTURA (máx.)	10,00				13,00				16,00			
COMPRIMENTO (mm)		ROSCA (mm)				ROSCA (mm)				ROSCA (mm)			
50		82.006	45	248,20	0.5								
75		82.007	65	321,37	0.5								
100		82.008	65	395,54	0.5								
125		82.009	80	538,26	0.5	82.015	80	927,24	0.2				
150		82.010	80	625,44	0.5	82.016	80	1.066,33	0.2				
175		82.011	80	710,73	0.5	82.017	80	1.394,43	0.2				
200		82.012	100	796,02	0.5	82.018	120	1.558,48	0.2	82.029	120	3.112,86	0.1
250		82.013	100	1.111,58	0.2	82.019	170	2.169,57	0.1	82.030	120	3.787,31	0.1
300		82.014	100	1.307,74	0.2	82.020	220	2.546,88	0.1	82.031	180	4.461,76	0.1
350						82.021	270	2.924,20	0.1	82.032	180	5.136,22	0.1
400						82.022	320	3.301,52	0.1	82.033	180	5.810,67	0.1
450						82.023	370	4.046,72	0.1	82.034	180	6.485,12	0.05
500						82.024	420	4.461,76	0.1	82.035	180	7.159,58	0.05
550						82.025	470	4.876,81	0.1	82.036	180	8.902,30	0.05
600						82.026	520	5.291,86	0.1	82.037	180	9.668,73	0.05
650						82.027	570	5.706,91	0.1	82.038	180	10.435,15	0.05
700						82.028	620	6.121,96	0.1	82.039	180	11.201,58	0.05
800										82.040	200	11.968,00	0.05
900										82.041	200	12.734,42	0.05

## 4.11 Barra ASTM A 193-B7

### 1 Metro



PREÇOS BRUTOS POR PEÇA EM REAIS				
BITOLA	FIOS POR POLEGADA	EMBALAGEM (pçs)	CÓDIGO	PREÇOS
3/8"	UNC - 16	10	9.027	16,40
1/2"	UNC - 13	10	9.028	28,29
5/8"	UNC - 11	5	9.029	47,47
3/4"	UNC - 10	5	9.030	66,00
7/8"	UNC - 9	5	9.031	97,30
1"	UNC - 8	5	9.032	126,91
1.1/8"	UNC - 7	2	9.033	221,05
1.1/4"	UNC - 7	2	9.034	279,47
1.3/8"	UNC - 6	2	9.035	329,47
1.1/2"	UNC - 6	2	9.036	403,68
1.3/4"	UNC - 5	2	9.037	578,95
2"	UNC - 4,5	2	9.038	765,79
1.1/8"	UN - 8	2	9.039	225,26
1.1/4"	UN - 8	2	9.040	283,16
1.3/8"	UN - 8	2	9.147	347,37
1.1/2"	UN - 8	2	9.148	417,89
1.5/8"	UN - 8	2	9.149	494,74
1.3/4"	UN - 8	2	9.150	578,95
1.7/8"	UN - 8	2	9.151	668,42
2"	UN - 8	2	9.152	765,79

## 4.12 Parafuso Estojo ASTM A 193 B7 Com Porca SX ASTM A 194-2H Com 2 Porcas Montadas / Oxidado de Têmpera



### PREÇOS BRUTOS POR PEÇA EM REAIS

DIMENSIONAL NOMINAL	1/2"			5/8"			3/4"			7/8"			1"			1.1/8"			1.1/4"		
FIOS POR POL.	UNC - 13			UNC - 11			UNC - 10			UNC - 9			UNC - 8			UN - 8			UN - 8		
COMPRIMENTO																					
2"	39.972	3,67	50	39.990	6,45	50	57.005	10,00	50												
2.1/4"	39.973	3,82	50	39.991	6,83	50	57.006	10,46	50												
2.1/2"	89.067	4,17	50	39.719	7,10	50	57.007	10,85	50	57.013	16,44	20	57.022	21,73	20	57.033	40,26	10			
2.3/4"	89.068	4,36	50	39.992	7,57	50	57.008	11,23	50	57.014	17,14	20	39.908	22,69	20	57.034	41,63	10	57.050	55,11	10
3"	89.070	4,52	50	9.323	7,84	20	57.009	11,69	20	57.015	17,72	20	39.909	23,58	20	57.035	43,21	10	57.051	57,05	10
3.1/4"	39.138	4,55	50	37.536	8,07	20	39.032	12,16	20	57.016	18,29	20	57.023	24,12	10	57.036	44,53	10	57.052	58,79	10
3.1/2"	89.071	4,90	50	9.324	8,45	20	88.918	13,12	20	57.017	18,87	20	57.024	24,89	10	57.037	45,89	10	57.053	60,47	10
3.3/4"	39.023	4,99	50	89.188	8,69	20	35.239	13,52	20	57.018	19,57	20	57.025	25,78	10	57.038	47,47	10	57.054	62,47	10
4"	39.074	5,09	50	88.909	9,19	20	88.912	13,89	20	57.019	20,15	20	57.026	26,55	10	57.039	48,84	10	57.055	64,16	10
4.1/4"	39.975	5,25	50	37.537	9,26	20	38.029	14,39	20	57.020	20,73	20	57.027	27,29	10	57.040	50,16	10	57.056	65,84	10
4.1/2"	39.024	5,44	50	88.917	9,96	20	88.913	14,86	20	38.528	21,42	20	57.028	28,18	10	57.041	51,74	10	57.057	67,84	10
4.3/4"	39.025	5,64	50	39.148	10,20	20	88.922	15,25	20	37.535	22,12	20	57.029	28,95	10	57.042	53,11	10	57.058	69,53	10
5"	39.026	5,83	50	88.910	10,54	20	88.919	15,71	20	88.926	22,54	20	57.030	29,84	10	57.043	54,68	10	57.059	71,53	10
5.1/2"	39.027	6,18	50	37.677	10,85	20	88.920	16,60	20	89.187	23,93	20	39.885	31,57	10	57.044	57,37	10	57.060	74,89	10
6"	39.982	6,52	50	39.152	11,27	20	39.145	16,97	20	88.923	25,05	20	39.140	33,08	10	89.087	62,05	10	57.061	78,58	10
6.1/2"	39.983	6,87	50	88.911	11,97	20	57.010	17,60	20	88.924	26,21	20	39.141	34,66	10	38.531	63,21	10	57.062	82,26	10
7"	39.905	7,37	50	39.993	12,47	20	39.147	18,45	20	39.042	27,56	20	89.143	36,32	10	57.045	65,95	10	38.534	85,68	5
7.1/2"	39.984	7,60	50	39.994	13,08	20	39.034	19,30	20	39.043	28,87	20	57.031	37,82	10	39.057	68,89	5	38.535	89,37	5
8"	39.985	7,95	50	38.508	13,70	20	39.907	20,22	20	39.046	30,11	10	38.510	39,48	10	89.142	71,11	5	38.549	93,05	5
8.1/2"	39.986	8,30	25	57.001	14,28	20	39.037	20,96	20	39.047	31,34	10	88.925	41,18	10	57.046	74,74	5	38.537	96,42	5
9"	39.987	8,68	25	57.002	14,90	20	57.011	21,73	20	39.049	32,58	10	88.914	42,92	10	57.047	77,42	5	57.063	100,11	5
9.1/2"	39.988	9,03	25	57.003	15,52	20	39.039	22,62	20	39.050	33,81	10	57.032	44,31	10	57.048	80,37	5	38.538	103,79	5
10"	39.989	9,42	25	57.004	16,13	20	57.012	23,47	20	57.021	35,05	10	39.055	45,97	10	57.049	83,32	5	57.064	107,47	5

### PREÇOS BRUTOS POR PEÇA EM REAIS

DIMENSIONAL NOMINAL	1.3/8"			1.1/2"			1.5/8"			1.3/4"			1.7/8"			2"				
FIOS POR POL.	UN - 8			UN - 8			UN - 8			UN - 8			UN - 8			UN - 8				
COMPRIMENTO																				
3"	57.072	75,00	5																	
3.1/4"	57.073	77,11	5	57.091	91,74	5														
3.1/2"	57.074	79,16	5	57.092	94,21	5	57.117	120,37	2											
3.3/4"	57.075	81,63	5	57.093	97,16	5	57.118	123,84	2	57.134	142,58	2								
4"	57.076	83,68	5	57.094	99,63	5	57.119	126,79	2	57.135	146,05	2	57.150	181,16	2					
4.1/4"	57.077	85,79	5	57.095	102,16	5	57.120	129,74	2	57.136	149,53	2	57.151	185,16	2					
4.1/2"	57.078	88,21	5	57.096	105,11	5	57.121	133,21	2	57.137	153,58	2	57.152	189,84	2	57.166	218,21	2		
4.3/4"	57.079	90,32	5	57.097	107,58	5	57.122	136,21	2	57.138	157,05	2	57.153	193,89	2	57.167	222,84	2		
5"	57.080	92,74	5	57.098	110,53	5	57.123	139,63	2	57.139	161,11	2	57.154	198,53	2	57.168	228,16	2		
5.1/2"	57.081	96,89	5	57.099	115,53	5	57.124	145,58	2	57.140	168,05	2	57.155	206,58	2	57.169	237,37	2		
6"	57.082	101,42	5	57.100	120,95	5	57.125	152,00	2	57.141	175,58	2	57.156	215,26	2	57.170	247,37	2		
6.1/2"	57.083	105,95	5	57.101	126,42	5	57.126	158,47	2	57.142	183,11	2	57.157	223,95	2	57.171	257,26	2		
7"	57.084	110,11	5	89.308	130,68	5	57.127	164,37	2	57.143	190,05	2	57.158	231,95	2	57.172	266,47	2		
7.1/2"	57.085	114,63	5	57.103	136,84	5	57.128	170,84	2	57.144	197,00	2	57.159	240,68	2	57.173	276,42	2		
8"	57.086	119,11	5	57.104	142,26	5	57.129	177,26	2	57.145	203,95	2	57.160	249,37	2	57.174	286,37	2		
8.1/2"	57.087	123,32	5	57.105	147,37	5	57.130	183,21	2	57.146	210,89	2	57.161	257,37	2	57.175	295,58	2		
9"	57.088	127,79	5	57.106	152,74	5	57.131	189,63	2	57.147	217,84	2	57.162	266,05	2	57.176	305,53	2		
9.1/2"	57.089	132,32	5	37.667	158,32	5	57.132	196,05	2	57.148	224,79	2	57.163	274,74	2	57.177	315,47	2		
10"	57.090	136,84	5	57.108	162,37	5	57.133	202,47	2	57.149	231,74	2	57.164	283,42	2	57.178	325,42	2		

Obs.: Para outras dimensões, normas e revestimentos, consulte-nos.  
Embalagem em Peças.



Desconto:

LINHA ESTRUTURAL

PÁG. D11

## 4.13 Parafuso Estojo ASTM A 193 B7

Oxidado de Têmpera

Sem Porca



PREÇOS BRUTOS POR PEÇA EM REAIS																					
DIMENSIONAL NOMINAL	1/2"			5/8"			3/4"			7/8"			1"			1.1/8"		1.1/4"			
FIOS POR POL.	UNC - 13			UNC - 11			UNC - 10			UNC - 9			UNC - 8			UN - 8		UN - 8			
COMPRIMENTO																					
2"	39,600	1,43	50	57,191	2,35	50	57,203	3,28	50												
2.1/4"	57,180	1,58	50	57,192	2,70	50	57,204	3,74	50												
2.1/2"	37,907	1,78	50	57,193	2,97	50	57,205	4,13	50	57,208	6,10	20	57,217	7,99	20	57,266	14,15	10			
2.3/4"	38,413	1,93	50	57,194	3,24	50	57,206	4,52	50	57,209	6,68	20	57,218	8,72	20	57,267	15,52	10	57,281	19,53	10
3"	38,414	2,12	50	37,908	3,58	20	57,207	4,98	20	57,210	7,37	20	57,219	9,61	20	57,268	17,10	10	57,282	21,47	10
3.1/4"	38,905	2,32	50	38,415	3,86	20	38,876	5,44	20	57,211	7,95	20	57,220	10,38	10	57,269	18,42	10	57,283	23,21	10
3.1/2"	37,914	2,47	50	37,915	4,16	20	38,416	5,79	20	57,212	8,53	20	57,221	11,15	10	57,270	19,78	10	57,284	24,89	10
3.3/4"	38,867	2,66	50	37,190	4,47	20	39,825	6,25	20	57,213	9,22	20	57,222	12,04	10	57,271	21,36	10	57,285	26,89	10
4"	57,181	2,86	50	38,332	4,78	20	37,912	6,64	20	57,214	9,80	20	57,223	12,81	10	57,272	22,73	10	57,286	28,58	10
4.1/4"	57,182	3,01	50	38,906	5,05	20	38,991	7,02	20	57,215	10,38	20	57,224	13,55	10	57,273	24,05	10	57,287	30,26	10
4.1/2"	38,806	3,20	50	37,909	5,40	20	37,918	7,49	20	38,418	11,08	20	57,225	14,44	10	57,274	25,63	10	57,288	32,26	10
4.3/4"	38,808	3,40	50	38,995	5,71	20	38,907	7,91	20	38,419	11,66	20	57,226	15,21	10	57,275	27,00	10	57,289	33,95	10
5"	38,809	3,59	50	39,166	6,29	20	37,913	8,38	20	38,420	12,35	20	57,227	16,09	10	57,276	28,57	10	57,290	35,95	10
5.1/2"	38,870	3,94	50	37,916	6,56	20	37,919	9,15	20	37,904	13,51	20	38,422	17,64	10	57,277	31,26	10	57,291	39,32	10
6"	57,183	4,28	50	37,910	7,17	20	37,901	10,00	20	38,909	14,82	20	38,906	19,34	10	38,335	34,21	10	57,292	43,00	10
6.1/2"	57,184	4,63	50	38,873	7,79	20	37,897	10,88	20	37,678	16,60	20	38,907	20,92	10	38,984	37,15	10	57,293	46,68	10
7"	57,185	4,98	50	37,917	8,37	20	38,994	11,73	20	38,886	17,21	20	39,158	22,42	10	39,168	39,84	10	37,905	50,11	5
7.1/2"	39,164	5,36	50	57,198	8,99	20	38,878	12,54	20	38,887	18,53	20	57,263	24,08	10	38,901	42,78	5	38,981	53,95	5
8"	57,186	5,71	50	37,911	9,61	20	37,902	13,39	20	38,890	19,76	10	38,334	25,74	10	37,899	45,68	5	37,900	57,47	5
8.1/2"	57,187	6,06	25	57,199	10,18	20	38,881	14,24	20	38,891	21,00	10	57,264	27,25	10	38,997	48,63	5	38,982	61,11	5
9"	57,188	6,45	25	57,200	10,80	20	37,898	15,01	20	38,893	22,23	10	39,159	28,91	10	57,849	51,31	5	37,906	64,53	5
9.1/2"	57,189	6,79	25	57,201	11,42	20	38,883	15,90	20	38,894	23,47	10	57,265	30,57	10	57,279	54,26	5	38,431	68,21	5
10"	57,190	7,18	25	57,202	12,04	20	37,903	16,75	20	57,216	24,70	10	38,899	32,23	10	57,280	57,21	5	57,294	71,89	5

PREÇOS BRUTOS POR PEÇA EM REAIS																		
DIMENSIONAL NOMINAL	1.3/8"			1.1/2"			1.5/8"			1.3/4"			1.7/8"			2"		
FIOS POR POL.	UN - 8			UN - 8			UN - 8			UN - 8			UN - 8			UN - 8		
COMPRIMENTO																		
3"	57,331	26,37	5															
3.1/4"	57,332	29,00	5	57,350	34,26	5												
3.1/2"	57,333	30,53	5	57,351	36,74	5	57,368	43,53	2									
3.3/4"	57,334	33,00	5	57,352	39,68	5	57,369	47,00	2	57,385	55,00	2						
4"	57,335	35,05	5	57,353	42,16	5	57,370	49,95	2	57,386	58,47	2	57,401	67,47	2			
4.1/4"	57,336	37,16	5	57,354	44,68	5	57,371	52,89	2	57,387	61,95	2	57,402	71,47	2			
4.1/2"	57,337	39,58	5	57,355	47,63	5	57,372	56,37	2	57,388	66,00	2	57,403	76,16	2	57,416	87,26	2
4.3/4"	57,338	41,68	5	57,356	50,11	5	57,373	59,37	2	57,389	69,47	2	57,404	80,21	2	57,417	91,89	2
5"	57,339	44,11	5	57,357	53,05	5	57,374	62,79	2	57,390	73,53	2	57,405	84,84	2	57,418	97,21	2
5.1/2"	57,340	48,26	5	57,358	58,05	5	57,375	68,74	2	57,391	80,47	2	57,406	92,89	2	57,419	106,42	2
6"	57,341	52,79	5	57,359	63,47	5	57,376	75,16	2	57,392	88,00	2	57,407	101,58	2	57,420	116,37	2
6.1/2"	57,342	57,32	5	57,360	68,95	5	57,377	81,63	2	57,393	95,53	2	57,408	110,26	2	57,421	126,32	2
7"	57,343	61,47	5	57,361	73,95	5	57,378	87,53	2	57,394	102,47	2	57,409	118,26	2	57,422	135,53	2
7.1/2"	57,344	66,00	5	57,362	79,37	5	57,379	94,00	2	57,395	109,42	2	57,410	127,00	2	57,423	145,47	2
8"	57,345	70,47	5	57,363	84,79	5	57,380	100,42	2	57,396	116,37	2	57,411	135,68	2	57,424	155,42	2
8.1/2"	57,346	74,68	5	57,364	89,84	5	57,381	106,37	2	57,397	123,32	2	57,412	143,68	2	57,425	164,63	2
9"	57,347	79,16	5	57,365	95,26	5	57,382	112,79	2	57,398	130,26	2	57,413	152,37	2	57,426	174,58	2
9.1/2"	57,348	83,68	5	57,366	100,68	5	57,383	119,21	2	57,399	137,21	2	57,414	161,05	2	57,427	184,53	2
10"	57,349	88,21	5	57,367	106,11	5	57,384	125,63	2	57,400	144,16	2	57,415	169,74	2	57,428	194,47	2

Obs.: Para outras dimensões, normas e revestimentos, consulte-nos.  
Embalagem em Peças.