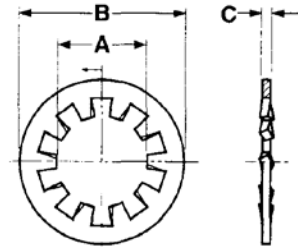


Lock Washers

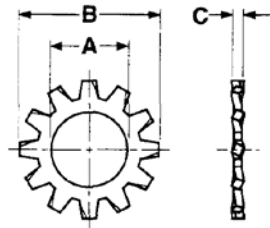
Internal Tooth

Nominal Washer Size		A		B		C	
		Inside Diameter		Outside Diameter		Thickness	
		Min.	Max.	Max.	Min.	Max.	Min.
2	0.086	0.089	0.095	0.200	0.175	0.015	0.010
4	0.112	0.115	0.123	0.270	0.255	0.019	0.015
6	0.138	0.141	0.150	0.295	0.275	0.021	0.017
8	0.164	0.168	0.176	0.340	0.325	0.023	0.018
10	0.190	0.195	0.204	0.381	0.365	0.025	0.020
12	0.216	0.221	0.231	0.410	0.394	0.025	0.020
1/4	0.250	0.256	0.267	0.478	0.460	0.028	0.023
5/16	0.312	0.320	0.332	0.610	0.594	0.034	0.028
3/8	0.375	0.384	0.398	0.692	0.670	0.040	0.032
7/16	0.438	0.448	0.464	0.789	0.740	0.040	0.032
1/2	0.500	0.512	0.530	0.900	0.867	0.045	0.037
5/8	0.625	0.640	0.663	1.071	1.045	0.050	0.042
1/8 Pipe		0.425	0.410	0.615	0.595	0.022	0.017



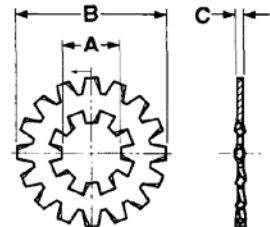
External Tooth

Nominal Washer Size		A		B		C	
		Inside Diameter		Outside Diameter		Thickness	
		Min.	Max.	Max.	Min.	Max.	Min.
4	0.112	0.115	0.123	0.260	0.245	0.019	0.015
6	0.138	0.141	0.150	0.320	0.305	0.022	0.016
8	0.164	0.168	0.176	0.381	0.365	0.023	0.018
10	0.190	0.195	0.204	0.410	0.395	0.025	0.020
12	0.216	0.221	0.231	0.475	0.460	0.028	0.023
1/4	0.250	0.256	0.267	0.510	0.494	0.028	0.023
5/16	0.312	0.320	0.332	0.610	0.588	0.034	0.028
3/8	0.375	0.384	0.398	0.694	0.670	0.040	0.032
7/16	0.438	0.448	0.464	0.760	0.740	0.040	0.032
1/2	0.500	0.513	0.530	0.900	0.880	0.045	0.037
5/8	0.625	0.641	0.663	1.070	1.045	0.050	0.042

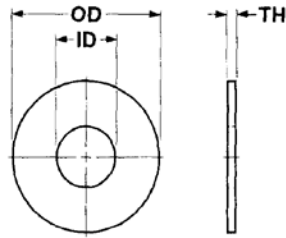


Internal – External Tooth

Nominal Washer Size		A		B		C	
		Inside Diameter		Outside Diameter		Thickness	
		Min.	Max.	Max.	Min.	Max.	Min.
6	0.138	0.141	0.150	0.510	0.495	0.028	0.023
8	0.164	0.168	0.176	0.510	0.495	0.028	0.023
10	0.190	0.195	0.204	0.610	0.580	0.034	0.028
1/4	0.250	0.256	0.267	0.760	0.725	0.040	0.032



Flat Washers



Machine Screw

NO	ID	OD	TH	WT/M
2	.092	.219	.018	.16
4	.125	.280	.026	.36
5	.140	.280	.026	.33
6	.150	.375	.032	.83
8	.170	.375	.032	.79
10	.203	.438	.032	1.10
12	.227	.500	.048	2.22
14	.265	.562	.048	2.70

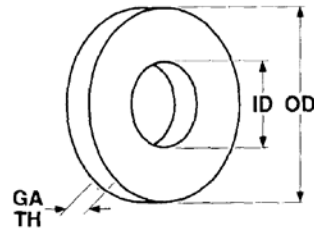
Fender Washers

275

Bolt Size	ID	OD	TH	Approx No. in 20 #
10	7/32	1	.051 .080	1.4M
1/4	9/32	1	.051 .080	1.5M
1/4	9/32	1-1/4	.051 .080	.92M
1/4	9/32	1-1/2	.051 .080	.62M
5/16	11/32	1-1/4	.051 .080	.96M
5/16	11/32	1-1/2	.051 .080	.64M
3/8	13/32	1-1/4	.051 .080	.94M
3/8	13/32	1-1/2	.051 .080	.66M
1/2	17/32	2	.051 .080	.38M

USS Washers

Bolt Size, In.	Outside Dia., In.	Inside Dia., In.	American Standard Gauge	Approx. Lbs. Per M Pcs.	Approx. No./Pcs. Per Lb.	Approx. No./Pcs Per 20Lbs
3/16	9/16	1/4	18 (3/64)	2.8	361	7,220
1/4	3/4	5/16	16 (1/16)	6.7	149	2,980
5/16	7/8	3/8	14 (5/64)	11.5	87	1,740
3/8	1	7/16	14 (5/64)	14.9	67	1,340
7/16	1-1/4	1/2	14 (5/64)	24.4	41	820
1/2	1-3/8	9/16	12 (7/64)	38.5	26	520
9/16	1-1/2	5/8	12 (7/64)	45.5	22	440
5/8	1-3/4	1-1/16	10 (9/64)	77	13	260
3/4	2	1-3/16	9 (5/32)	110	9.1	182
7/8	2-1/4	1-5/16	8 (11/64)	153	6.5	130
1	2-1/2	1-1/16	8 (11/64)	188	5.3	106
1-1/8	2-3/4	1-1/4	8 (11/64)	220	4.5	90
1-1/4	3	1-3/8	8 (11/64)	260	3.8	76
1-3/8	3-1/4	1-1/2	7 (3/16)	333	3	60
1-1/2	3-1/2	1-5/8	7 (3/16)	385	2.6	52
1-5/8	3-3/4	1-3/4	7 (3/16)	448	2.3	46
1-3/4	4	1-7/8	7 (3/16)	500	2	40
1-7/8	4-1/4	2	7 (3/16)	569	1.8	36
2	4-1/2	2-1/8	7 (3/16)	630	1.6	32
2-1/4	4-3/4	2-3/8	5 (7/32)	826	1.2	24
2-1/2	5	2-5/8	4 (15/64)	961	1	20
2-3/4	5-1/4	2-7/8	3 (1/4)	1100	.9	18
3	5-1/2	3-1/8	2 (5/32)	1300	.8	16



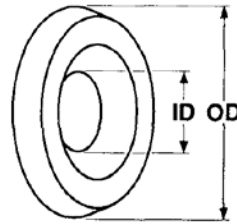
SAE Washers

Bolt Size, In.	Outside Dia., In.	Inside Dia., In.	American Standard Gauge	Approx. Lbs. Per M Pcs.	Approx. No./Pcs. Per Lb.	Approx. No./Pcs Per 20Lbs:
4	5/16	1/8	21 (1/32)	.58	1650	33,000
6	3/8	5/32	18 (3/64)	1.26	790	15,800
8	7/16	3/16	18 (3/64)	1.7	585	11,700
3/16	1/2	7/32	18 (3/64)	2.3	435	8,700
1/2	9/16	1/4	16 (1/16)	3.4	280	5,600
1/4	5/8	9/32	16 (1/16)	4.5	222	4,400
5/16	11/16	11/32	16 (1/16)	5.2	192	3,840
3/8	13/16	13/32	16 (1/16)	7.2	140	2,800
7/16	59/64	15/32	16 (1/16)	9.5	105	2,100
1/2	1-1/16	17/32	13 (3/32)	18.3	55	1,100
9/16	1-3/16	19/32	13 (3/32)	23.4	43	860
5/8	1-5/16	21/32	13 (3/32)	27.7	36	720
3/4	1-1/2	13/16	10 (9/64)	47.4	21	420
7/8	1-3/4	15/16	10 (9/64)	63	16	320
1	2	1-1/16	10 (9/64)	83	12	240
1-1/8	2-1/4	1-3/16	10 (9/64)	109	9.2	184
1-1/4	2-1/2	1-5/16	9 (5/32)	160	6.25	125
1-3/8	2-3/4	1-7/16	9 (5/32)	190	5.25	105
1-1/2	3	1-9/16	9 (5/32)	240	4.25	85

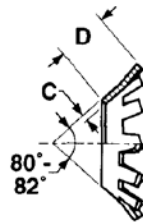
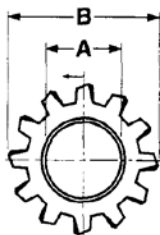
Washer Specifications

Countersunk Finishing Washers

Screw Size	OD	ID		Wght Per M
		Min.	Max.	
6	.469	.170	.200	.8
8	.531	.180	.210	1.1
10	.593	.235	.265	1.4
12	.656	.259	.289	2.1
1/4	.781	.305	.335	2.7



Lock Washers



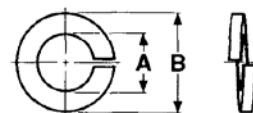
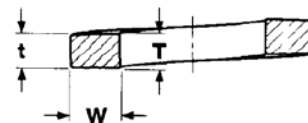
Countersunk External Tooth

Nominal Washer Size		A		B	C		D		Approx. Wght. Per 1000 Pcs.
		Inside Diameter		Outside Diameter	Thickness		Length		
		Min.	Max.	Ref.	Max.	Min.	Max.	Min.	
6	0.138	0.140	0.150	0.301	0.021	0.017	0.092	0.082	.25
8	0.164	0.167	0.177	0.340	0.021	0.017	0.105	0.088	.30
10	0.190	0.195	0.205	0.369	0.025	0.020	0.099	0.083	.40
1/4	0.250	0.255	0.267	0.468	0.025	0.020	0.128	0.113	.60

Split Lock Washers

Hi-Collar Helical Spring Lock Washers

Nominal Washer Size	A		B	W	T ± 1/2	
	Inside Diameter		Outside Diameter	Washer Section Width	Thickness	
	Min.	Max.	Max.		Min.	Min.
4	0.112	0.115	0.121	0.173	0.022	0.022
6	0.138	0.141	0.148	0.216	0.030	0.030
8	0.164	0.168	0.175	0.267	0.042	0.047
10	0.190	0.194	0.202	0.294	0.042	0.047
1/4	0.250	0.255	0.263	0.365	0.047	0.078
5/16	0.312	0.318	0.238	0.460	0.062	0.093
3/8	0.375	0.382	0.393	0.533	0.076	0.125



Split Lock Washers



Medium and Heavy Split Helical Spring Lock Washers

Nominal Washer Size	A		B		T		W		
	Inside Diameter		Outside Diameter		Mean Sect. Thickness $\frac{(T+t)}{2}$		Section Width		
	Max.	Min.	Med. Max.	Heavy Max.	Med. Min.	Heavy Min.	Med. Min.	Heavy Min.	
2	0.086	0.094	0.088	0.172	0.182	0.020	0.025	0.035	0.040
3	0.099	0.107	0.101	0.195	0.209	0.025	0.031	0.040	0.047
4	0.112	0.120	0.114	0.209	0.223	0.025	0.031	0.040	0.047
5	0.125	0.133	0.127	0.236	0.252	0.031	0.040	0.047	0.055
6	0.138	0.148	0.141	0.250	0.266	0.031	0.040	0.047	0.055
8	0.164	0.174	0.167	0.293	0.307	0.040	0.047	0.055	0.062
10	0.190	0.200	0.193	0.334	0.350	0.047	0.056	0.062	0.070
12	0.216	0.227	0.220	0.377	0.391	0.056	0.063	0.070	0.077
1/4	0.250	0.262	0.254	0.489	0.491	0.062	0.077	0.109	0.110
5/16	0.312	0.326	0.317	0.586	0.596	0.078	0.097	0.125	0.130
3/8	0.375	0.390	0.380	0.683	0.691	0.094	0.115	0.141	0.145
7/16	0.438	0.455	0.443	0.779	0.787	0.109	0.133	0.156	0.160
1/2	0.500	0.518	0.506	0.873	0.883	0.125	0.151	0.171	0.176
9/16	0.562	0.582	0.570	0.971	0.981	0.141	0.170	0.188	0.193
5/8	0.625	0.650	0.635	1.079	1.093	0.156	0.189	0.203	0.210
11/16	0.688	0.713	0.698	1.176	1.192	0.172	0.207	0.219	0.227
3/4	0.750	0.775	0.760	1.271	1.291	0.188	0.226	0.234	0.244
13/16	0.812	0.843	0.824	1.367	1.391	0.203	0.246	0.250	0.262
7/8	0.875	0.905	0.887	1.464	1.494	0.219	0.266	0.266	0.281
15/16	0.938	0.970	0.950	1.560	1.594	0.234	0.284	0.281	0.298
1	1.000	1.042	1.017	1.661	1.705	0.250	0.306	0.297	0.319
1-1/16	1.062	1.107	1.080	1.756	1.808	0.266	0.326	0.312	0.338
1-1/8	1.125	1.172	1.144	1.853	1.909	0.281	0.345	0.328	0.356
1-3/16	1.188	1.237	1.208	1.950	2.008	0.297	0.364	0.344	0.373
1-1/4	1.250	1.302	1.271	2.045	2.113	0.312	0.384	0.359	0.393
1-5/16	1.312	1.366	1.334	2.141	2.211	0.328	0.403	0.375	0.410
1-3/8	1.375	1.432	1.398	2.239	2.311	0.344	0.422	0.391	0.427
1-7/16	1.438	1.497	1.462	2.334	2.406	0.359	0.440	0.406	0.442
1-1/2	1.500	1.561	1.525	2.430	2.502	0.375	0.458	0.422	0.458