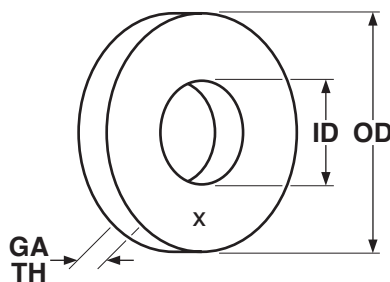


SAE FLAT

LOW CARBON STEEL & STAINLESS STEEL



SAE LOW CARBON & STAINLESS WASHERS

ASME B18.21.1- 2009

Bolt Size	Outside Diameter			Inside Diameter			Thickness			APPROXIMATE Number of STEEL washers per carton	
	Nominal	Max	Min	Nominal	Max	Min	American Standard (Gauge)	Max	Min	25 Lbs. (Zinc, Black Oxide or Plain finish)	20 Lbs. (Galvanized)
4	5/16	0.320	0.307	1/8	0.133	0.120	(1/32)	0.040	0.025	18500 (10lb box)	-
6	3/8	0.390	0.370	5/32	0.164	0.151	18 (3/64)	0.065	0.036	19750	-
8	7/16	0.453	0.433	3/16	0.196	0.183	18 (3/64)	0.065	0.036	14750	-
10	1/2	0.515	0.495	7/32	0.227	0.214	18 (3/64)	0.065	0.036	11375	-
12	9/16	0.577	0.557	1/4	0.265	0.245	16 (1/16)	0.080	0.051	7350	-
1/4	5/8	0.640	0.620	9/32	0.296	0.276	16 (1/16)	0.080	0.051	5245	4440
5/16	11/16	0.703	0.681	11/32	0.359	0.339	16 (1/16)	0.080	0.051	4980	3900
3/8	13/16	0.827	0.805	13/32	0.419	0.401	16 (1/16)	0.080	0.051	3500	2800
7/16	59/64	0.937	0.915	15/32	0.484	0.464	16 (1/16)	0.080	0.051	2750	-
1/2	1-1/16	1.092	1.055	17/32	0.546	0.526	13 (3/32)	0.121	0.074	1400	1120
9/16	1-3/16	1.186	1.149	19/32	0.609	0.589	13 (3/32)	0.121	0.074	1125	-
5/8	1-5/16	1.342	1.305	21/32	0.686	0.649	13 (3/32)	0.121	0.074	925	722
3/4	1-1/2	1.499	1.462	13/16	0.842	0.805	10 (9/64)	0.160	0.108	525	337
7/8	1-3/4	1.780	1.743	15/16	0.968	0.931	10 (9/64)	0.160	0.108	387	-
1	2	2.030	1.993	1-1/16	1.092	1.055	10 (9/64)	0.160	0.108	292	-
1-1/8	2-1/4	2.280	2.243	1-3/16	1.280	1.243	10 (9/64)	0.160	0.108	230	-
1-1/4	2-1/2	2.530	2.493	1-5/16	1.405	1.368	9 (5/32)	0.192	0.136	167	-
1-3/8	2-3/4	2.780	2.743	1-7/16	1.530	1.493	9 (5/32)	0.213	0.136	137	-
1-1/2	3	3.030	2.993	1-9/16	1.655	1.618	9 (5/32)	0.213	0.153	130	-

Description	Similar to a USS washer, but with slightly smaller inside and outside diameters. Also, most but not all SAE washers are made from thinner materials than USS washers.		
Applications/ Advantages	SAE washers were designed to serve similar purposes as the USS washers, but specifically to meet the requirements in the field of automotive engineering.		
Material	Steel		Stainless
	Plain washers shall be punched from hot-rolled, hot-rolled and pickled, or cold-rolled steel, or shall be machined from bar stock or tubing, or may be forged at the manufacturer's option.		18-8 Stainless Steel 316 Stainless Steel
Plating	Steel SAE washers are supplied in zinc and black oxide finishes. Other platings are available. See Appendix-A for more information.		Stainless SAE washers are usually supplied without any secondary finish.