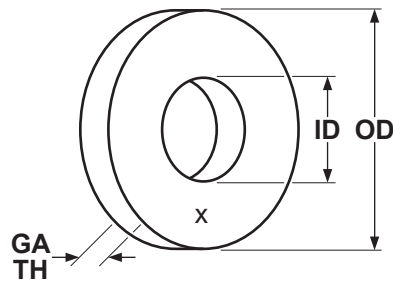


Washers *SAE FLAT*

Low Carbon Steel
18-8 Stainless



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	50 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)	.040	.025	83300	-
6	3/8	0.390	0.370	5/32	0.164	0.151	18 (3/64)	.065	.036	39500	-
8	7/16	0.453	0.433	3/16	0.196	0.183	18 (3/64)	.065	.036	29500	-
10	1/2	0.515	0.495	7/32	0.227	0.214	18 (3/64)	.065	.036	22750	-
3/16	9/16	0.577	0.557	1/4	0.265	0.245	18 (3/64)	.065	.036	-	-
12	9/16	0.577	0.557	1/4	0.265	0.245	16 (1/16)	.080	.051	14700	-
1/4	5/8	0.640	0.620	9/32	0.296	0.276	16 (1/16)	.080	.051	11100	4440
5/16	11/16	0.703	0.681	11/32	0.359	0.339	16 (1/16)	.080	.051	9750	3900
3/8	13/16	0.827	0.805	13/32	0.419	0.401	16 (1/16)	.080	.051	7000	2800
7/16	59/64	0.937	0.915	15/32	0.484	0.464	16 (1/16)	.080	.051	5500	-
1/2	1-1/16	1.092	1.055	17/32	0.546	0.526	13 (3/32)	.121	.074	2800	1120
9/16	1-3/16	1.186	1.149	19/32	0.609	0.589	13 (3/32)	.121	.074	2250	-
5/8	1-5/16	1.342	1.305	21/32	0.686	0.649	13 (3/32)	.121	.074	1850	722
3/4	1-1/2	1.499	1.462	13/16	0.842	0.805	10 (9/64)	.160	.108	1050	337
7/8	1-3/4	1.780	1.743	15/16	0.968	0.931	10 (9/64)	.160	.108	775	-
1	2	2.030	1.993	1-1/16	1.092	1.055	10 (9/64)	.160	.108	585	-
1-1/8	2-1/4	2.280	2.243	1-3/16	1.280	1.243	10 (9/64)	.160	.108	460	-
1-1/4	2-1/2	2.530	2.493	1-5/16	1.405	1.368	9 (5/32)	.192	.136	335	-
1-3/8	2-3/4	2.780	2.743	1-7/16	1.530	1.493	9 (5/32)	.213	.136	275	-
1-1/2	3	3.030	2.993	1-9/16	1.655	1.618	9 (5/32)	.213	.153	230	-

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	<i>Steel</i>	<i>Stainless</i>
	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.