

# Torque Tables



## 150# Raised Face Flanges

Nominal Pipe Size (inches)	Number of Bolts	Size of Bolts (inches)	FLEXSEAL®		EDGE®		Kammprofile		CMG*		Jacketed Gasket	
			Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)
0.5	4	0.50	16	47	9	52	8	42	7	37	18	53
0.75	4	0.50	22	60	12	60	11	54	10	60	25	60
1	4	0.50	30	60	15	60	13	60	13	60	27	60
1.25	4	0.50	33	60	16	60	24	60	20	60	42	60
1.5	4	0.50	47	60	23	60	31	60	26	60	59	60
2	4	0.63	74	120	36	120	55	120	52	120	94	120
2.5	4	0.63	87	120	43	120	63	120	61	120	108	120
3	4	0.63	120	120	63	120	102	120	89	120	120	120
4	8	0.63	92	120	47	120	76	120	63	120	111	120
5	8	0.75	124	200	63	200	106	200	88	200	189	200
6	8	0.75	178	200	89	200	137	200	111	200	173	200
8	8	0.75	200	200	128	200	190	200	150	200	200	200
10	12	0.88	236	320	120	320	178	320	141	320	300	320
12	12	0.88	320	320	163	320	178	320	187	320	320	320
14	12	1.00	408	490	209	490	268	490	238	490	451	490
16	16	1.00	412	490	210	490	267	490	226	490	449	490
18	16	1.13	649	710	328	710	381	710	336	710	562	710
20	20	1.13	572	710	289	710	335	710	296	710	562	710
24	20	1.25	820	1000	415	1000	438	1000	422	1000	740	1000

Based on ASTM A193 B7 bolts - 60,000 psi maximum bolt stress

\*Applicable for GRAPHONIC®, TEPHONIC® and G.E.T.™

## 300# Raised Face Flanges

Nominal Pipe Size (inches)	Number of Bolts	Size of Bolts (inches)	FLEXSEAL®		EDGE®		Kammprofile		CMG*		Jacketed Gasket	
			Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)
0.5	4	0.50	16	47	9	52	8	42	9	37	18	53
0.75	4	0.63	28	84	15	88	14	68	16	67	31	92
1	4	0.63	38	114	19	115	17	84	21	89	34	102
1.25	4	0.63	41	120	20	120	30	120	33	120	53	120
1.5	4	0.75	66	198	32	191	43	200	48	200	81	200
2	8	0.63	37	112	18	109	27	120	35	120	47	120
2.5	8	0.75	48	145	24	144	35	177	45	188	60	180
3	8	0.75	71	200	35	200	57	200	66	200	75	200
4	8	0.75	103	200	52	200	84	200	94	200	123	200
5	8	0.75	124	200	63	200	106	200	117	200	189	200
6	12	0.75	118	200	60	200	92	200	99	200	116	200
8	12	0.88	194	320	98	320	146	320	154	320	207	320
10	16	1.00	206	490	105	490	155	490	164	490	262	490
12	16	1.13	309	710	156	710	171	710	239	710	341	710
14	20	1.13	269	710	138	710	177	710	209	710	297	710
16	20	1.25	399	1000	203	1000	259	1000	292	1000	435	1000
18	24	1.25	478	1000	241	1000	280	1000	330	1000	414	1000
20	24	1.25	526	1000	266	1000	308	1000	364	1000	517	1000
24	24	1.50	723	1600	366	1600	386	1600	497	1600	652	1600

Based on ASTM A193 B7 bolts - 60,000 psi maximum bolt stress

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## 400# Raised Face Flanges

Nominal Pipe Size (inches)	Number of Bolts	Size of Bolts (inches)	FLEXSEAL®		EDGE®		Kammprofile		CMG*		Jacketed Gasket	
			Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)
0.5	4	0.50	16	47	17	52	8	42	Contact Engineering	18	53	
0.75	4	0.63	28	84	29	88	14	68		31	92	
1	4	0.63	38	114	38	115	17	84		34	102	
1.25	4	0.63	41	120	40	120	30	120		53	120	
1.5	4	0.75	66	198	64	191	43	200		81	200	
2	8	0.63	37	112	36	109	27	120		47	120	
2.5	8	0.75	48	145	48	144	35	177		60	180	
3	8	0.75	71	200	71	200	57	200		75	200	
4	8	0.88	149	320	120	320	97	320		142	320	
5	8	0.88	190	320	146	320	123	320		218	320	
6	12	0.88	173	320	138	320	106	320		133	320	
8	12	1.00	280	490	229	490	170	490		241	490	
10	16	1.13	314	710	230	691	170	710		287	710	
12	16	1.25	456	1000	345	1000	188	941		376	1000	
14	20	1.25	373	1000	304	911	195	975		328	983	
16	20	1.38	532	1360	445	1335	283	1360		475	1360	
18	24	1.38	567	1360	527	1360	306	1360		452	1357	
20	24	1.50	604	1600	563	1600	326	1600		547	1600	
24	24	1.75	962	2887	975	2924	513	2566		868	2603	

Based on ASTM A193 B7 bolts - 60,000 psi maximum bolt stress

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## 600# Raised Face Flanges

Nominal Pipe Size (inches)	Number of Bolts	Size of Bolts (inches)	FLEXSEAL®		EDGE®		Kammprofile		CMG*		Jacketed Gasket	
			Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)
0.5	4	0.50	16	47	17	52	8	42	Contact Engineering	18	53	
0.75	4	0.63	28	84	29	88	14	68		31	92	
1	4	0.63	38	114	38	115	17	84		34	102	
1.25	4	0.63	41	120	40	120	30	120		53	120	
1.5	4	0.75	66	198	64	191	43	200		81	200	
2	8	0.63	37	112	36	109	27	120		47	120	
2.5	8	0.75	48	145	48	144	35	177		60	180	
3	8	0.75	71	200	71	200	57	200		75	200	
4	8	0.88	149	320	120	320	97	320		142	320	
5	8	1.00	221	490	170	490	143	490		254	490	
6	12	1.00	202	490	160	480	123	490		155	466	
8	12	1.13	307	710	251	710	187	710		264	710	
10	16	1.25	346	1000	254	763	188	938		317	951	
12	20	1.25	365	1000	276	829	151	753		301	904	
14	20	1.38	408	1224	332	996	213	1066		358	1075	
16	20	1.50	514	1543	430	1291	274	1370		460	1379	
18	20	1.63	757	2200	704	2112	409	2044		604	1811	
20	24	1.63	695	2085	647	1941	375	1875		629	1886	
24	24	1.88	1103	3308	1117	3350	588	2940		994	2983	

Based on ASTM A193 B7 bolts - 60,000 psi maximum bolt stress

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## 900# Raised Face Flanges

Nominal Pipe Size (inches)	Number of Bolts	Size of Bolts (inches)	FLEXSEAL®		EDGE®		Kammprofile		CMG*		Jacketed Gasket	
			Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)
0.5	4	0.75	22	100	24	100	12	100	Contact Engineering		24	73
0.75	4	0.75	31	100	33	100	15	100			34	103
1	4	0.88	49	160	49	160	22	160			44	131
1.25	4	0.88	53	160	52	160	39	193			68	204
1.5	4	1.00	89	266	85	256	58	289			109	328
2	8	0.88	48	160	47	160	35	176			60	180
2.5	8	1.00	65	245	65	245	47	245			81	242
3	8	0.88	106	319	81	244	66	328			87	260
4	8	1.13	191	572	153	458	124	622			182	545
5	8	1.25	268	804	206	617	173	865			307	921
6	12	1.13	221	664	176	527	135	675			170	511
8	12	1.38	333	1000	303	909	225	1127			319	956
10	16	1.38	306	919	278	835	205	1026			347	1040
12	20	1.38	368	1103	302	907	165	824			329	988
14	20	1.50	388	1164	321	963	206	1031			347	1040
16	20	1.63	514	1541	495	1485	315	1575			529	1586
18	20	1.88	991	2972	933	2800	542	2710			800	2401
20	20	2.00	934	2802	984	2952	570	2850			956	2867
24	20	2.50	1382	4400	1582	4747	833	4400			1409	4227

Based on ASTM A193 B7 bolts - 60,000 psi maximum bolt stress

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## 1500# Raised Face Flanges

Nominal Pipe Size (inches)	Number of Bolts	Size of Bolts (inches)	FLEXSEAL®		EDGE®		Kammprofile		CMG*		Jacketed Gasket	
			Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)
0.5	4	0.75	22	100	24	100	20	100	Contact Engineering		24	73
0.75	4	0.75	31	100	33	100	25	100			34	103
1	4	0.88	49	160	49	160	36	160			44	131
1.25	4	0.88	80	240	52	160	64	193			68	204
1.5	4	1.00	118	353	85	256	96	289			109	328
2	8	0.88	76	227	47	160	59	176			60	180
2.5	8	1.00	108	325	65	245	79	245			81	242
3	8	1.13	150	451	104	355	140	419			111	332
4	8	1.25	231	694	169	506	229	686			200	601
5	8	1.50	323	970	218	800	305	915			325	975
6	12	1.38	289	867	212	680	272	815			206	617
8	12	1.63	432	1297	337	1100	418	1253			354	1063
10	12	1.88	754	2262	547	2000	673	2018			682	2045
12	16	2.00	647	2200	532	2200	484	2200			580	1741
14	16	2.25	684	3180	655	3180	701	3180			707	2121
16	16	2.50	1141	4400	969	4400	1027	4400			1035	3104
18	16	2.75	1606	5920	1513	5920	1464	5920			1297	3892
20	16	3.00	1921	7720	1810	7720	1748	7720			1758	5273
24	16	3.50	3100	13000	2867	13000	2516	13000			2553	7658

Based on ASTM A193 B7 bolts - 60,000 psi maximum bolt stress

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# Torque Tables

## 2500# Raised Face Flanges

Nominal Pipe Size (inches)	Number of Bolts	Size of Bolts (inches)	FLEXSEAL®		EDGE®		Kammprofile		CMG*		Jacketed Gasket	
			Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)	Minimum Torque (ft.lbs.)	Preferred Torque (ft.lbs.)
0.5	4	0.75	22	100	24	100	20	100	Contact Engineering	24	73	
0.75	4	0.75	31	100	33	100	25	100		34	103	
1	4	0.88	49	160	49	160	36	160		44	131	
1.25	4	1.00	93	279	60	245	75	245		79	237	
1.5	4	1.13	129	387	94	355	106	355		120	360	
2	8	1.00	88	264	55	245	68	245		70	210	
2.5	8	1.13	119	357	71	355	87	355		89	266	
3	8	1.25	166	500	115	500	154	500		122	367	
4	8	1.50	245	800	178	800	242	800		212	636	
5	8	1.75	430	1500	289	1500	406	1500		432	1297	
6	8	2.00	611	2200	448	2200	574	2200		434	1303	
8	12	2.00	548	2200	427	2200	529	2200		449	1347	
10	12	2.50	831	4400	646	4400	794	4400		805	2415	
12	12	2.75	1326	5920	963	5920	875	5920	1050	3150		

Based on ASTM A193 B7 bolts - 60,000 psi maximum bolt stress

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