

Bolt Torque Values - ULTRAPAC™ (Sheet Ring Gaskets / Raised Face Flanges)

Sheet Ring Gaskets on ASME B16.5 Raised Face Flanges with ASTM A193 Gr. B7 Bolts / A194 Gr. 2H Nuts

Applicable Products: Ultrapac 8600, 8900 & 8900-FM

Sheet Ring Gaskets on ASME B16.5 Raised Face Flange - Class 150						
Flange Size (in.)	1/16" THK		1/8" THK		No. of Bolts	Bolt Size (in.)
	MIN Torque. (ft.-lbs.)	MAX Torque (ft.-lbs.)	MIN Torque (ft.-lbs.)	MAX Torque (ft.-lbs.)		
	Ultrapac 8600, 8900 & 8900-FM		Ultrapac 8600, 8900 & 8900-FM			
1/2	7	29	9	29	4	1/2
3/4	10	43	14	43	4	1/2
1	13	56	18	56	4	1/2
1-1/4	21	66	27	66	4	1/2
1-1/2	27	66	36	66	4	1/2
2	55	132	73	132	4	5/8
2-1/2	64	132	85	132	4	5/8
3	94	132	125	132	4	5/8
3-1/2	52	132	70	132	8	5/8
4	67	132	89	132	8	5/8
5	100	238	133	238	8	3/4
6	126	238	167	238	8	3/4
8	170	238	227	238	8	3/4
10	161	385	215	385	12	7/8
12	215	385	286	385	12	7/8
14	267	578	356	578	12	1
16	254	578	339	578	16	1
18	388	859	517	859	16	1-1/8
20	342	859	456	859	20	1-1/8
24	491	1219	654	1219	20	1-1/4

NOTES: 1) The design bolt stress used for calculation is based on 60% of bolt yield at room temperature. 2) Assuming new, non-coated and well lubricated bolts and nuts are used with through-hardened washers. K factor of 0.20 was used in the calculation per ASME PCC-1. Multiply torque values by a factor of "K / 0.20" if using a lubricant with a different K factor. 3) Assuming maximum internal pressure follows ASME B16.5 Pressure-Temperature rating tables. 4) Assuming ASME PCC-1 bolting pattern is followed. 5) Flange imperfections, rotation and deflection are ignored. 6) Bolt torque values in above Tables are for reference only. User is responsible for applying appropriate bolt loads to properly seat the gasket.

Bolt Torque Values - ULTRAPAC™ (Sheet Ring Gaskets / Raised Face Flanges)

Sheet Ring Gaskets on ASME B16.5 Raised Face Flanges with ASTM A193 Gr. B7 Bolts / A194 Gr. 2H Nuts

Applicable Products: Ultrapac 8600, 8900 & 8900-FM

Sheet Ring Gaskets on ASME B16.5 Raised Face Flange - Class 300						
Flange Size (in.)	1/16" THK		1/8" THK		No. of Bolts	Bolt Size (in.)
	MIN Torque. (ft.-lbs.)	MAX Torque. (ft.-lbs.)	MIN Torque (ft.-lbs.)	MAX Torque (ft.-lbs.)		
	Ultrapac 8600, 8900 & 8900-FM		Ultrapac 8600, 8900 & 8900-FM			
1/2	11	29	13	29	4	1/2
3/4	19	53	23	53	4	5/8
1	25	70	30	70	4	5/8
1-1/4	39	107	46	107	4	5/8
1-1/2	62	171	73	171	4	3/4
2	41	114	49	114	8	5/8
2-1/2	58	160	68	160	8	3/4
3	84	235	100	235	8	3/4
3-1/2	94	238	112	238	8	3/4
4	120	238	142	238	8	3/4
5	149	238	177	238	8	3/4
6	126	238	149	238	12	3/4
8	198	385	235	385	12	7/8
10	208	577	246	577	16	1
12	310	859	368	859	16	1-1/8
14	271	752	321	752	20	1-1/8
16	381	1058	452	1058	20	1-1/4
18	431	1197	511	1197	24	1-1/4
20	475	1219	563	1219	24	1-1/4
24	736	2044	872	2044	24	1-1/2

NOTES: 1) The design bolt stress used for calculation is based on 60% of bolt yield at room temperature. 2) Assuming new, non-coated and well lubricated bolts and nuts are used with through-hardened washers. K factor of 0.20 was used in the calculation per ASME PCC-1. Multiply torque values by a factor of "K / 0.20" if using a lubricant with a different K factor. 3) Assuming maximum internal pressure follows ASME B16.5 Pressure-Temperature rating tables. 4) Assuming ASME PCC-1 bolting pattern is followed. 5) Flange imperfections, rotation and deflection are ignored. 6) Bolt torque values in above Tables are for reference only. User is responsible for applying appropriate bolt loads to properly seat the gasket.

Bolt Torque Values - ULTRAPAC™ (Full Face Gaskets / Flat Face Flanges)

Full Face Gaskets on ASME B16.5 Flat Face Flanges with ASTM A193 Gr. B7 Bolts / A194 Gr. 2H Nuts

Applicable Products: Ultrapac 8600, 8900 & 8900-FM

Full Face Gaskets on ASME B16.5 Flat Face Flange - Class 150										
Flange Size (in.)	1/16" THK				1/8" THK				No. of Bolts	Bolt Size (in.)
	MIN Torque. (ft-lbs.)			MAX Torque (ft-lbs.)	MIN Torque (ft-lbs.)			MAX Torque (ft-lbs.)		
	Ultrapac 8600	Ultrapac 8900	Ultrapac 8900-FM	All Styles	Ultrapac 8600	Ultrapac 8900	Ultrapac 8900-FM	All Styles		
1/2	45	43	38	66	57	52	48	66	4	1/2
3/4	52	50	44	66	66	61	57	66	4	1/2
1	59	57	50	66	66	66	64	66	4	1/2
1-1/4	66	63	56	66	66	66	66	66	4	1/2
1-1/2	66	66	63	66	66	66	66	66	4	1/2
2	122	117	104	132	132	132	132	132	4	5/8
2-1/2	132	132	132	132	132	132	132	132	4	5/8
3	132	132	132	132	132	132	132	132	4	5/8
3-1/2	101	96	86	132	129	117	109	132	8	5/8
4	107	102	91	132	132	125	117	132	8	5/8
5	144	137	123	238	184	168	157	238	8	3/4
6	159	152	136	238	204	185	173	238	8	3/4
8	209	200	178	238	238	238	227	238	8	3/4
10	203	193	172	385	259	235	220	385	12	7/8
12	264	252	225	385	338	307	287	385	12	7/8
14	354	337	301	578	453	412	384	578	12	1
16	309	295	263	578	395	359	336	578	16	1
18	359	343	306	859	460	418	390	859	16	1-1/8
20	328	313	280	859	420	382	357	859	20	1-1/8
24	441	421	375	1219	564	513	479	1219	20	1-1/4

NOTES: 1) The design bolt stress used for calculation is based on 60% of bolt yield at room temperature. 2) Assuming new, non-coated and well lubricated bolts and nuts are used with through-hardened washers. K factor of 0.20 was used in the calculation per ASME PCC-1. Multiply torque values by a factor of "K / 0.20" if using a lubricant with a different K factor. 3) Assuming maximum internal pressure follows ASME B16.5 Pressure-Temperature rating tables. 4) Assuming ASME PCC-1 bolting pattern is followed. 5) Flange imperfections, rotation and deflection are ignored. 6) Bolt torque values in above Tables are for reference only. User is responsible for applying appropriate bolt loads to properly seat the gasket.

Bolt Torque Values - ULTRAPAC™ (Full Face Gaskets / Flat Face Flanges)

Full Face Gaskets on ASME B16.5 Flat Face Flanges with ASTM A193 Gr. B7 Bolts / A194 Gr. 2H Nuts

Applicable Products: Ultrapac 8600, 8900 & 8900-FM

Full Face Gaskets on ASME B16.5 Flat Face Flange - Class 300										
Flange Size (in.)	1/16" THK				1/8" THK				No. of Bolts	Bolt Size (in.)
	MIN Torque. (ft-lbs.)			MAX Torque (ft-lbs.)	MIN Torque (ft-lbs.)			MAX Torque (ft-lbs.)		
	Ultrapac 8600	Ultrapac 8900	Ultrapac 8900-FM	All Styles	Ultrapac 8600	Ultrapac 8900	Ultrapac 8900-FM	All Styles		
1/2	50	48	43	66	64	59	55	66	4	1/2
3/4	88	84	75	132	113	103	96	132	4	5/8
1	95	90	81	132	121	110	103	132	4	5/8
1-1/4	104	99	88	132	132	121	113	132	4	5/8
1-1/2	161	152	136	238	205	186	174	238	4	3/4
2	73	68	60	132	91	83	77	132	8	5/8
2-1/2	113	101	93	238	135	123	115	238	8	3/4
3	132	114	109	238	153	139	130	238	8	3/4
3-1/2	152	129	127	238	172	157	146	238	8	3/4
4	183	151	153	238	203	184	172	238	8	3/4
5	213	171	179	238	224	204	191	238	8	3/4
6	176	143	150	238	179	162	152	238	12	3/4
8	280	231	241	385	280	240	226	385	12	7/8
10	312	261	271	578	312	261	256	578	16	1
12	466	393	408	859	466	393	386	859	16	1-1/8
14	462	392	406	859	462	392	385	859	20	1-1/8
16	615	526	544	1219	615	526	517	1219	20	1-1/4
18	605	520	537	1219	605	520	512	1219	24	1-1/4
20	704	609	628	1219	704	609	600	1219	24	1-1/4
24	1142	998	1027	2213	1142	998	984	2213	24	1-1/2

NOTES: 1) The design bolt stress used for calculation is based on 60% of bolt yield at room temperature. 2) Assuming new, non-coated and well lubricated bolts and nuts are used with through-hardened washers. K factor of 0.20 was used in the calculation per ASME PCC-1. Multiply torque values by a factor of "K / 0.20" if using a lubricant with a different K factor. 3) Assuming maximum internal pressure follows ASME B16.5 Pressure-Temperature rating tables. 4) Assuming ASME PCC-1 bolting pattern is followed. 5) Flange imperfections, rotation and deflection are ignored. 6) Bolt torque values in above Tables are for reference only. User is responsible for applying appropriate bolt loads to properly seat the gasket.