

Bolt Torque Values - THERMAPAC® (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: Thermapac 9100 & 9950

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.)		
	Thermapac 9100 & 9950		Thermapac 9100 & 9950			
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 - THERMAPAC® (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: Thermapac 9100 & 9950

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.)		
	Thermapac 9100 & 9950		Thermapac 9100 & 9950			
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 - THERMAPAC® (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: Thermapac 9100 & 9950

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.)		
	Thermapac 9100	Thermapac 9950	Thermapac 9100, Thermapac 9950	Thermapac 9100	Thermapac 9950	Thermapac 9100, Thermapac 9950		
1/2	25	32	66	29	32	66	4	1/2
3/4	29	38	66	34	38	66	4	1/2
1	33	43	66	38	43	66	4	1/2
1-1/4	37	48	66	42	48	66	4	1/2
1-1/2	42	53	66	48	53	66	4	1/2
2	69	88	132	79	88	132	4	5/8
2-1/2	87	112	132	100	112	132	4	5/8
3	93	120	132	107	120	132	4	5/8
3-1/2	57	73	132	65	73	132	8	5/8
4	61	77	132	69	78	132	8	5/8
5	81	104	238	93	108	238	8	3/4
6	90	115	238	103	123	238	8	3/4
8	125	151	238	135	170	238	8	3/4
10	128	146	385	130	173	385	12	7/8
12	175	191	385	170	233	385	12	7/8
14	240	255	578	228	318	578	12	1
16	219	223	578	199	286	578	16	1
18	269	259	859	246	347	859	16	1-1/8
20	254	237	859	233	326	859	20	1-1/8
24	367	323	1219	339	464	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 - THERMAPAC® (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: Thermapac 9100 & 9950

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.)		
	Thermapac 9100	Thermapac 9950	Thermapac 9100, Thermapac 9950	Thermapac 9100	Thermapac 9950	Thermapac 9100, Thermapac 9950		
1/2	54	41	66	46	66	66	4	1/2
3/4	98	75	132	83	132	132	4	5/8
1	107	82	132	91	132	132	4	5/8
1-1/4	119	92	132	102	132	132	4	5/8
1-1/2	188	146	238	161	238	238	4	3/4
2	85	67	132	73	125	132	8	5/8
2-1/2	130	103	238	113	190	238	8	3/4
3	151	120	238	132	219	238	8	3/4
3-1/2	175	140	238	152	238	238	8	3/4
4	210	168	238	183	238	238	8	3/4
5	238	196	238	213	238	238	8	3/4
6	200	163	238	176	238	238	12	3/4
8	314	261	385	280	385	385	12	7/8
10	347	291	578	312	470	578	16	1
12	517	437	859	466	690	859	16	1-1/8
14	512	434	859	462	680	859	20	1-1/8
16	678	580	1219	615	893	1219	20	1-1/4
18	664	571	1219	605	866	1219	24	1-1/4
20	770	666	1219	704	996	1219	24	1-1/4
24	1242	1084	2213	1142	1587	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.