



MAXIPROFILE & SWG RECOMMENDED BOLT TORQUE REQUIREMENTS

150 ASME B16.5 BOLT MATERIALS - ASTM A193 B7, B16 & ASTM A320 L7

CLASS 150 Recommended Minimum Torque Values (Nm)

Please note:

These torque values are only valid for the type of bolting, gasket and lubricant as specified.

These torque values are indicative for general purpose applications. In cases where high temperature conditions, thermal or pressure cycling, vibration or severe misalignments are present, please contact Robco for advice.

Torque Procedure:

1. Ensure that all gasket sealing faces are clean and defect free.
2. Ensure that all friction bearing surfaces are clean and well lubricated.
3. Ensure that the gasket is of the correct material and size.
4. Ensure that initial flange alignment is within 1mm per 200mm diameter.
5. Hand tighten all nuts.
6. Torque nuts following a cross pattern in stages ie 30%, 60% and 100% of final torque value.
7. Do a final check pass in a clockwise or counterclockwise direction at the final torque value.
8. The final flange alignment must be within 0.5mm.
9. Retorque as required for high temperature or cyclic applications.

SPECIFICATIONS

Flange NPS	No of Bolts	Bolt Size	RBS (Mpa)	RBS (Psi)	$\mu= 0.09$ Lubricant (N.m)	$\mu= 0.09$ Lubricant (lbs x ft)	$\mu= 0.14$ Lubricant (N.m)	$\mu= 0.14$ Lubricant (lbs x ft)	$\mu= 0.225$ Unlubricated (N.m)	$\mu= 0.225$ Unlubricated (lbs x ft)
1/2	4	1/2	276	40100	40	30	59	44	90	66
3/4	4	1/2	276	40100	40	30	59	44	90	66
1	4	1/2	276	40100	40	30	59	44	90	66
1 1/4	4	1/2	276	40100	40	30	59	44	90	66
1 1/2	4	1/2	310	45000	46	34	66	49	102	75
2	4	5/8	276	40100	79	58	116	86	178	131
2 1/2	4	5/8	310	45000	89	66	130	96	200	148
3	4	5/8	345	50100	99	73	145	107	222	164
4	8	5/8	310	45000	89	66	130	96	200	148
5	8	3/4	276	40100	139	103	203	150	313	231
6	8	3/4	310	45000	156	115	229	169	352	260
8	8	3/4	345	50100	173	128	254	187	392	289
10	12	7/8	276	40100	221	163	325	240	502	370
12	12	7/8	310	45000	149	110	366	270	565	417
14	12	1	310	45000	371	274	545	402	842	621
16	16	1	276	40100	330	243	485	358	748	552
18	16	1 1/8	276	40100	479	353	708	522	1098	810
20	20	1 1/8	276	40100	479	353	708	522	1098	810
24	20	1 1/4	276	40100	668	493	992	732	1543	1138



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MAXIPROFILE & SWG RECOMMENDED BOLT TORQUE REQUIREMENTS

300 ASME B16.5

BOLT MATERIALS - ASTM A193 B7, B16 & ASTM A320 L7

CLASS 300 Recommended Minimum Torque Values (Nm)

Please note:

These torque values are only valid for the type of bolting, gasket and lubricant as specified.

These torque values are indicative for general purpose applications. In cases where high temperature conditions, thermal or pressure cycling, vibration or severe misalignments are present, please contact Robco for advice.

Torque Procedure:

1. Ensure that all gasket sealing faces are clean and defect free.
2. Ensure that all friction bearing surfaces are clean and well lubricated.
3. Ensure that the gasket is of the correct material and size.
4. Ensure that initial flange alignment is within 1mm per 200mm diameter.
5. Hand tighten all nuts.
6. Torque nuts following a cross pattern in stages ie 30%, 60% and 100% of final torque value.
7. Do a final check pass in a clockwise or counterclockwise direction at the final torque value.
8. The final flange alignment must be within 0.5mm.
9. Retorque as required for high temperature or cyclic applications.

SPECIFICATIONS

Flange NPS	No of Bolts	Bolt Size	RBS (Mpa)	RBS (Psi)	$\mu= 0.09$ Lubricant (Nm)	$\mu= 0.09$ Lubricant (lbs x ft)	$\mu= 0.14$ Lubricant (N.m)	$\mu= 0.14$ Lubricant (lbs x ft)	$\mu= 0.225$ Unlubricated (N.m)	$\mu= 0.225$ Unlubricated (lbs x ft)
1/2	4	1/2	276	40100	40	30	59	44	90	66
3/4	4	5/8	276	40100	79	58	116	86	178	131
1	4	5/8	276	40100	79	58	116	86	178	131
1 1/4	4	5/8	276	40100	79	58	116	86	178	131
1 1/2	4	3/4	276	40100	139	103	203	150	313	231
2	8	5/8	276	40100	79	58	116	86	178	131
2 1/2	8	3/4	276	40100	139	103	203	150	313	231
3	8	3/4	276	40100	139	103	203	150	313	231
4	8	3/4	310	45000	156	115	229	169	352	260
5	8	3/4	310	45000	156	115	229	169	352	260
6	12	3/4	310	45000	156	115	229	169	352	260
8	12	7/8	310	45000	249	184	366	270	565	417
10	16	1	310	45000	371	274	545	402	842	621
12	16	1 1/8	310	45000	539	398	797	588	1235	911
14	20	1 1/8	310	45000	539	398	797	588	1235	911
16	20	1 1/4	310	45000	752	555	1116	823	1736	1280
18	24	1 1/4	310	45000	752	555	1116	823	1736	1280
20	24	1 1/4	310	45000	752	555	1116	823	1736	1280
24	24	1 1/2	310	45000	1329	980	1988	1466	3108	2292



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MAXIPROFILE & SWG RECOMMENDED BOLT TORQUE REQUIREMENTS

600 ASME B16.5 BOLT MATERIALS - ASTM A193 B7, B16 & ASTM A320 L7

CLASS 600

Recommended Minimum Torque Values (Nm)

Please note:

These torque values are only valid for the type of bolting, gasket and lubricant as specified.

These torque values are indicative for general purpose applications. In cases where high temperature conditions, thermal or pressure cycling, vibration or severe misalignments are present, please contact Robco for advice.

Torque Procedure:

1. Ensure that all gasket sealing faces are clean and defect free.
2. Ensure that all friction bearing surfaces are clean and well lubricated.
3. Ensure that the gasket is of the correct material and size.
4. Ensure that initial flange alignment is within 1mm per 200mm diameter.
5. Hand tighten all nuts.
6. Torque nuts following a cross pattern in stages ie 30%, 60% and 100% of final torque value.
7. Do a final check pass in a clockwise or counterclockwise direction at the final torque value.
8. The final flange alignment must be within 0.5mm.
9. Retorque as required for high temperature or cyclic applications.

SPECIFICATIONS

Flange NPS	No of Bolts	Bolt Size	RBS (Mpa)	RBS (Psi)	$\mu= 0.09$ Lubricant (Nm)	$\mu= 0.09$ Lubricant (lbs x ft)	$\mu= 0.14$ Lubricant (N.m)	$\mu= 0.14$ Lubricant (lbs x ft)	$\mu= 0.225$ Unlubricated (N.m)	$\mu= 0.225$ Unlubricated (lbs x ft)
1/2	4	1/2	276	40100	40	30	59	44	90	66
3/4	4	5/8	276	40100	79	58	116	86	178	131
1	4	5/8	276	40100	79	58	116	86	178	131
1 1/4	4	5/8	310	45000	89	66	130	96	200	148
1 1/2	4	3/4	310	45000	156	115	229	169	352	260
2	8	5/8	310	45000	89	66	130	96	200	148
2 1/2	8	3/4	276	40100	139	103	203	150	313	231
3	8	3/4	310	45000	156	115	229	169	352	260
4	8	7/8	345	50100	277	204	407	300	628	463
5	8	1	345	50100	412	304	606	447	935	690
6	12	1	310	45000	371	274	545	402	842	621
8	12	1 1/8	345	50100	599	442	885	653	1372	1012
10	16	1 1/4	310	45000	752	555	1116	823	1736	1280
12	20	1 1/4	310	45000	752	555	1116	823	1736	1280
14	20	1 3/8	310	45000	1014	748	1511	1114	2356	1738
16	20	1 1/2	310	45000	1329	980	1988	1466	3108	2292
18	20	1 5/8	310	45000	1704	1257	2555	1884	4002	2952
20	24	1 5/8	310	45000	1704	1257	2555	1884	4002	2952
24	24	1 7/8	310	45000	2656	1959	4000	2950	6286	4636



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MAXIPROFILE & SWG RECOMMENDED BOLT TORQUE REQUIREMENTS

900 ASME B16.5 BOLT MATERIALS - ASTM A193 B7, B16 & ASTM A320 L7

CLASS 900 Recommended Minimum Torque Values (Nm)

Please note:

These torque values are only valid for the type of bolting, gasket and lubricant as specified.

These torque values are indicative for general purpose applications. In cases where high temperature conditions, thermal or pressure cycling, vibration or severe misalignments are present, please contact Robco for advice.

Torque Procedure:

1. Ensure that all gasket sealing faces are clean and defect free.
2. Ensure that all friction bearing surfaces are clean and well lubricated.
3. Ensure that the gasket is of the correct material and size.
4. Ensure that initial flange alignment is within 1mm per 200mm diameter.
5. Hand tighten all nuts.
6. Torque nuts following a cross pattern in stages ie 30%, 60% and 100% of final torque value.
7. Do a final check pass in a clockwise or counterclockwise direction at the final torque value.
8. The final flange alignment must be within 0.5mm.
9. Retorque as required for high temperature or cyclic applications.

SPECIFICATIONS

Flange NPS	No of Bolts	Bolt Size	RBS (Mpa)	RBS (Psi)	$\mu= 0.09$ Lubricant (Nm)	$\mu= 0.09$ Lubricant (lbs x ft)	$\mu= 0.14$ Lubricant (N.m)	$\mu= 0.14$ Lubricant (lbs x ft)	$\mu= 0.225$ Unlubricated (N.m)	$\mu= 0.225$ Unlubricated (lbs x ft)
1/2	4	3/4	276	40100	139	103	203	150	313	231
3/4	4	3/4	276	40100	139	103	203	150	313	231
1	4	7/8	276	40100	221	163	325	240	502	370
1 1/4	4	7/8	310	45000	249	184	366	270	565	417
1 1/2	4	1	310	45000	371	274	545	402	842	621
2	8	7/8	276	40100	221	163	325	240	502	370
2 1/2	8	1	276	40100	330	243	485	358	748	552
3	8	7/8	345	50100	277	204	407	300	628	463
4	8	1 1/8	310	45000	539	398	797	588	1235	911
5	8	1 1/4	310	45000	752	555	1116	823	1736	1280
6	12	1 1/8	345	50100	599	442	885	653	1372	1012
8	12	1 3/8	310	45000	1014	748	1511	1114	2356	1738
10	16	1 3/8	345	50100	1126	831	1679	1238	2618	1931
12	20	1 3/8	345	50100	1126	831	1679	1238	2618	1931
14	20	1 1/2	345	50100	1477	1089	2209	1629	3453	2547
16	20	1 5/8	345	50100	1893	1396	2839	2094	4447	3280
18	20	1 7/8	345	50100	2951	2177	4444	3278	6984	5151
20	20	2	345	50100	3599	2655	5430	4005	8545	6303
24	20	2 1/2	310	45000	6410	4728	9728	7175	15369	11336



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MAXIPROFILE & SWG RECOMMENDED BOLT TORQUE REQUIREMENTS

1500 ASME B16.5 BOLT MATERIALS - ASTM A193 B7, B16 & ASTM A320 L7

CLASS 1500 Recommended Minimum Torque Values (Nm)

Please note:

These torque values are only valid for the type of bolting, gasket and lubricant as specified.

These torque values are indicative for general purpose applications. In cases where high temperature conditions, thermal or pressure cycling, vibration or severe misalignments are present, please contact Robco for advice.

Torque Procedure:

1. Ensure that all gasket sealing faces are clean and defect free.
2. Ensure that all friction bearing surfaces are clean and well lubricated.
3. Ensure that the gasket is of the correct material and size.
4. Ensure that initial flange alignment is within 1mm per 200mm diameter.
5. Hand tighten all nuts.
6. Torque nuts following a cross pattern in stages ie 30%, 60% and 100% of final torque value.
7. Do a final check pass in a clockwise or counterclockwise direction at the final torque value.
8. The final flange alignment must be within 0.5mm.
9. Retorque as required for high temperature or cyclic applications.

SPECIFICATIONS

Flange NPS	No of Bolts	Bolt Size	RBS (Mpa)	RBS (Psi)	$\mu=0.09$ Lubricant (Nm)	$\mu=0.09$ Lubricant (lbs x ft)	$\mu=0.14$ Lubricant (N.m)	$\mu=0.14$ Lubricant (lbs x ft)	$\mu=0.225$ Unlubricated (N.m)	$\mu=0.225$ Unlubricated (lbs x ft)
1/2	4	3/4	276	40100	139	103	203	150	313	231
3/4	4	3/4	310	45000	156	115	209	154	352	260
1	4	7/8	310	45000	249	184	366	270	565	417
1 1/4	4	7/8	345	50100	277	204	407	300	628	463
1 1/2	4	1	345	50100	412	304	606	447	935	690
2	8	7/8	345	50100	277	204	407	300	628	463
2 1/2	8	1	345	50100	412	304	606	447	935	690
3	8	1 1/8	345	50100	599	442	885	653	1372	1012
4	8	1 1/4	345	50100	835	616	1240	915	1929	1423
5	8	1 1/2	345	50100	1477	1089	2209	1629	3453	2547
6	12	1 3/8	345	50100	1126	831	1679	1238	2618	1931
8	12	1 5/8	345	50100	1893	1396	2839	2094	4447	3280
10	12	1 7/8	345	50100	2951	2177	4444	3278	6984	5151
12	16	2	345	50100	3599	2655	5430	4005	8545	6303
14	16	2 1/4	310	45000	4645	3426	7032	5187	11089	8179
16	16	2 1/2	310	45000	6410	4728	9728	7175	15369	11336
18	16	2 3/4	310	45000	8592	6337	13068	9639	20677	15251
20	16	3	310	45000	11188	8252	17046	12573	27005	19918
24	16	3 1/2	310	45000	17899	13202	27348	20171	43412	32019



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MAXIPROFILE & SWG RECOMMENDED BOLT TORQUE REQUIREMENTS

2500 ASME B16.5 BOLT MATERIALS - ASTM A193 B7, B16 & ASTM A320 L7

CLASS 2500 Recommended Minimum Torque Values (Nm)

Please note:

These torque values are only valid for the type of bolting, gasket and lubricant as specified.

These torque values are indicative for general purpose applications. In cases where high temperature conditions, thermal or pressure cycling, vibration or severe misalignments are present, please contact Robco for advice.

Torque Procedure:

1. Ensure that all gasket sealing faces are clean and defect free.
2. Ensure that all friction bearing surfaces are clean and well lubricated.
3. Ensure that the gasket is of the correct material and size.
4. Ensure that initial flange alignment is within 1mm per 200mm diameter.
5. Hand tighten all nuts.
6. Torque nuts following a cross pattern in stages ie 30%, 60% and 100% of final torque value.
7. Do a final check pass in a clockwise or counterclockwise direction at the final torque value.
8. The final flange alignment must be within 0.5mm.
9. Retorque as required for high temperature or cyclic applications.

SPECIFICATIONS

Flange NPS	No of Bolts	Bolt Size	RBS (Mpa)	RBS (Psi)	$\mu= 0.09$ Lubricant (Nm)	$\mu= 0.09$ Lubricant (lbs x ft)	$\mu= 0.14$ Lubricant (N.m)	$\mu= 0.14$ Lubricant (lbs x ft)	$\mu= 0.225$ Unlubricated (N.m)	$\mu= 0.225$ Unlubricated (lbs x ft)
1/2	4	3/4	310	45000	156	115	229	169	352	260
3/4	4	3/4	345	50100	173	128	254	187	392	289
1	4	7/8	345	50100	277	204	407	300	628	463
1 1/4	4	1	379	55000	453	334	666	491	1029	759
1 1/2	4	1 1/8	379	55000	659	486	974	718	1510	1114
2	8	1	379	55000	453	334	666	491	1029	759
2 1/2	8	1 1/8	345	50100	599	442	885	653	1372	1012
3	8	1 1/4	379	55000	919	678	1364	1006	2121	1564
4	8	1 1/2	379	55000	1625	1199	2430	1792	3798	2801
5	8	1 3/4	345	50100	2380	1755	3577	2638	5613	4140
6	8	2	345	50100	3599	2655	5430	4005	8545	6303
8	12	2	345	50100	3599	2655	5430	4005	8545	6303
10	12	2 1/2	345	50100	7122	5253	10809	7972	17077	12596
12	12	2 3/4	345	50100	9547	7042	14520	10710	22974	16945