



**Flange & Bolting Data for ASME B16.5 & BS 1560 Flanges**

Pressure Class 150lb						Pressure Class 300lb					Pressure Class 600lb				
Nom Bore	Ring No	Flange OD	No of Bolts	Bolt Dia	Bolt PCD	Ring No	Flange OD	No of Bolts	Bolt Dia	Bolt PCD	Ring No	Flange OD	No of Bolts	Bolt Dia	Bolt PCD
1/2"		3.1/2"	4	1/2"	2.3/8"	R11	3.3/4"	4	1/2"	2.5/8"	R11	3.3/4"	4	3/4"	2.5/8"
3/4"		3.7/8"	4	1/2"	2.3/4"	R13	4.5/8"	4	5/8"	3.1/4"	R13	4.5/8"	4	4.5/8"	3.1/4"
1"	R15	4.1/4"	4	1/2"	3.1/8"	R16	4.7/8"	4	5/8"	3.1/2"	R16	4.7/8"	4	4.7/8"	3.1/2"
1.1/4"	R17	4.5/8"	4	1/2"	3.1/2"	R18	5.1/4"	4	5/8"	3.7/8"	R18	5.1/4"	4	5.1/4"	3.7/8"
1.1/2"	R19	5"	4	1/2"	3.7/8"	R20	6.1/8"	4	3/4"	4.1/2"	R20	6.1/8"	4	6.1/8"	4.1/2"
2"	R22	6"	4	5/8"	4.3/4"	R23	6.1/2"	8	5/8"	5"	R23	6.1/2"	8	6.1/2"	5"
2.1/2"	R25	7"	4	5/8"	5.1/2"	R26	7.1/2"	8	3/4"	5.7/8"	R26	7.1/2"	8	7.1/2"	5.7/8"
3"	R29	7.1/2"	4	5/8"	6"	R31	8.1/4"	8	3/4"	6.5/8"	R31	8.1/4"	8	8.1/4"	6.5/8"
3.1/2"	R33	8.1/2"	8	5/8"	7"	R34	9"	8	3/4"	7.1/4"	R34	9"	8	7/8"	7.1/4"
4"	R36	9"	8	5/8"	7.1/2"	R37	10"	8	3/4"	7.7/8"	R37	10.3/4"	8	7/8"	8.1/2"
5"	R40	10"	8	3/4"	8.1/2"	R41	11"	8	3/4"	9.1/4"	R41	13"	8	1"	10.1/2"
6"	R43	11"	8	3/4"	9.1/2"	R45	12.1/2"	12	3/4"	10.5/8"	R45	14"	12	1"	11.3/4"
8"	R48	13.1/2"	8	3/4"	11.3/4"	R49	15"	12	7/8"	13"	R49	16.1/2"	12	1.1/8"	13.3/4"
10"	R52	16"	8	7/8"	14.1/4"	R53	17.1/2"	16	1"	15.1/4"	R53	20"	16	1.1/4"	17"
12"	R56	19"	12	7/8"	17"	R57	20.1/2"	16	1.1/8"	17.3/4"	R57	22"	20	1.1/4"	19.1/4"
14"	R59	21"	12	1"	18.3/4"	R61	23"	20	1.1/8"	20.1/4"	R61	23.3/4"	20	1.3/8"	21.8/16"
16"	R64	23.1/2"	16	1"	21.1/4"	R65	25.1/2"	20	1.1/4"	22.1/2"	R65	27"	20	1.1/2"	23.3/4"
18"	R68	25"	16	1.1/8"	22.3/4"	R69	28"	24	1.1/4"	24.3/4"	R69	29.1/4"	20	1.5/8"	25.3/4"
20"	R72	27.1/2"	20	1.1/8"	25"	R73	30.1/2"	24	1.1/4"	27"	R73	32"	24	1.5/8"	28.1/2"
24"	R76	32"	20	1.1/4"	29.1/2"	R77	36"	24	1.1/2"	32"	R77	37"	24	1.7/8"	33"

Pressure Class 900lb					Pressure Class 1500lb					Pressure Class 2500lb					
Nom Bore	Ring No	Flange OD	No of Bolts	Bolt Dia	Bolt PCD	Ring No	Flange OD	No of Bolts	Bolt Dia	Bolt PCD	Ring No	Flange OD	No of Bolts	Bolt Dia	Bolt PCD
1/2"	R12	4.3/4"	4	3/4"	3.1/4"	R12	4.3/4"	4	3/4"	3.1/4"	R13	5.1/4"	4	3/4"	3.1/2"
3/4"	R14	5.1/8"	4	3/4"	3.1/2"	R14	5.1/8"	4	3/4"	3.1/2"	R16	5.1/2"	4	3/4"	3.3/4"
1"	R16	5.7/8"	4	7/8"	4"	R16	5.7/8"	4	7/8"	4"	R18	6.1/4"	4	7/8"	4.1/4"
1.1/4"	R18	6.1/4"	4	7/8"	4.3/8"	R18	6.1/4"	4	7/8"	4.3/8"	R21	7.1/4"	4	1"	5.1/8"
1.1/2"	R20	7"	4	1"	4.7/8"	R20	7"	4	1"	4.7/8"	R23	8"	4	1.1/8"	5.3/4"
2"	R24	8.1/2"	8	7/8"	6.1/2"	R24	8.1/2"	8	7/8"	6.1/2"	R26	9.1/4"	8	1"	6.3/4"
2.1/2"	R27	9.5/8"	8	1"	7.1/2"	R27	9.5/8"	8	1"	7.1/2"	R28	10.1/2"	8	1.1/8"	7.3/4"
3"	R31	9.1/2"	8	7/8"	7.1/2"	R35	10.1/2"	8	1.1/8"	8"	R32	12"	8	1.1/4"	9"
4"	R37	11.1/2"	8	1.1/8"	9.1/4"	R39	12.1/4"	8	1.1/4"	9.1/2"	R38	14"	8	1.1/2"	10.3/4"
5"	R41	13.3/4"	8	1.1/4"	11"	R44	14.3/4"	8	1.1/2"	11.1/2"	R42	16.1/2"	8	1.3/4"	12.3/4"
6"	R45	15"	12	1.1/8"	12.1/2"	R46	15.1/2"	12	1.3/8"	12.1/2"	R47	19"	8	2"	14.1/2"
8"	R49	18.1/2"	12	1.3/8"	15.1/2"	R50	19"	12	1.5/8"	15.1/2"	R51	21.3/4"	12"	2"	17.1/4"
10"	R53	21.1/2"	16	1.3/8"	18.1/2"	R54	23"	12	1.7/8"	19"	R55	26.1/2"	12"	2.1/2"	21.1/4"
12"	R57	24"	20	1.3/8"	21"	R58	26.1/2"	16	2"	22.1/2"	R60	30"	12"	2.3/4"	24.3/8"
14"	R62	25.1/4"	20	1.1/2"	22"	R63	29.1/2"	16	2.1/4"	25"	n/a	n/a	n/a	n/a	n/a
16"	R66	27.3/4"	20	1.5/8"	24.1/4"	R67	32.1/2"	16	2.1/2"	27.3/4"	n/a	n/a	n/a	n/a	n/a
18"	R70	31"	20	1.7/8"	27"	R71	36"	16	2.3/4"	30.1/2"	n/a	n/a	n/a	n/a	n/a
20"	R74	33.3/4"	20	2"	29.1/2"	R75	38.3/4"	16	3"	32.3/4"	n/a	n/a	n/a	n/a	n/a
24"	R78	41"	20	2.1/2"	35.1/2"	R79	46"	16	3.1/2"	39"	n/a	n/a	n/a	n/a	n/a

**Torque Information for Studbolts**

Bolt Dia	30,000psi		45,000psi		60,000psi	
	Torque Ft/lbs	Load lbs	Torque Ft/lbs	Load lbs	Torque Ft/lbs	Load lbs
1/4"	4	810	6	1215	8	1620
5/16"	8	1350	12	2025	16	2700
3/8"	12	2040	18	3060	24	4080
7/16"	20	2790	30	4185	40	5580
1/2"	30	3780	45	5670	60	7560
9/16"	45	4860	68	7290	90	9720
5/8"	60	6060	90	9090	120	12120
3/4"	100	9060	150	13590	200	18120
7/8"	160	12570	240	18855	320	25140
1"	245	16530	368	24795	490	33060
1.1/8"	355	21840	533	32760	710	43680
1.1/4"	500	27870	750	41805	1000	55740
1.3/8"	680	34650	1020	51975	1360	69300
1.1/2"	800	42150	1200	63225	1600	84300
1.5/8"	1100	50400	1650	75600	2200	100800
1.3/4"	1500	59400	2250	89100	3000	118800
1.7/8"	2000	69120	3000	103680	4000	138240
2"	2200	79560	3300	119340	4400	159120
2.1/4"	3180	102690	4770	154035	6360	205380
2.1/2"	4400	128760	6600	193140	8800	257520
2.3/4"	5920	157770	8880	236655	11840	315540
3"	7720	189720	11580	284580	15440	379440
3.1/4"	10000	224700	15000	337050	20000	449400
3.1/2"	12500	262500	18750	393750	25000	525000
3.3/4"	15400	303300	23150	454950	30900	606600

**Notes**

Load in Pounds on the Studbolts when the above Torque Loads are Applied.

The Bolt Threads & Nut Bearing Surfaces must be well Lubricated prior Tensioning.

It is Highly Recommended that Hydraulic Tensioning Equipment is Used on Bolt Diameters 1.1/8" and above.

Controlled Bolt Tightening should always be adopted to minimise the Risk of Assembly Leaks.

Remember Flange Assemblies Leak Not Gaskets!!!