



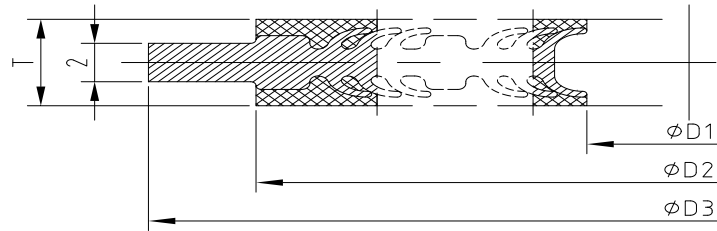
Fishbone Gaskets Size and Torque

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BS10 Series



TYPE II (With Centering Ring Construction) for FF (Flat Face) & RF (Raised Face) Flanges

Nominal Pipe Size	Table A						Table D					
	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)
1/2	26	38	53	9.6	97.3	41.7	26	38	53	9.6	97.3	41.7
3/4	32	45	59	12.5	97.3	41.7	32	45	59	12.5	97.3	41.7
1	40	54	69	16.4	97.3	41.7	40	54	69	16.4	97.3	41.7
1 1/4	48	62	73	19.2	97.3	41.7	48	62	73	19.2	97.3	41.7
1 1/2	54	70	84	24.7	97.3	49.5	54	70	84	24.7	97.3	49.5
2	67	86	97	45.3	195.3	90.6	67	86	97	45.3	195.3	90.6
2 1/2	83	102	110	54.8	195.3	109.6	83	102	110	54.8	195.3	109.6
3	97	116	129	63.1	195.3	126.1	97	116	129	63.1	195.3	126.1
3 1/2	110	129	148	70.8	195.3	141.5	110	129	148	70.8	195.3	141.5
4	124	143	161	79.1	195.3	158.1	124	143	161	79.1	195.3	158.1
5	150	169	192	94.5	195.3	167.4	150	169	192	47.2	195.3	94.5
6	175	194	218	109.3	195.3	167.4	175	194	218	54.6	195.3	109.3
7	200	224	243	79.3	195.3	158.6	200	224	243	79.3	195.3	158.6
8	226	250	275	89.0	195.3	167.4	226	250	275	89.0	195.3	167.4
9	248	276	307	109.6	195.3	167.4	248	276	307	109.6	195.3	167.4
10	274	302	334	144.5	350.9	289.0	274	302	334	144.5	350.9	289.0
12	324	352	385	169.6	350.9	300.8	324	352	385	113.0	350.9	226.1
13	356	384	417	185.6	350.9	300.8	356	384	417	123.7	350.9	247.4
14	382	410	446	231.7	568.7	463.4	382	410	446	154.5	568.7	308.9
15	407	435	471	246.3	568.7	487.5	407	435	471	164.2	568.7	328.4
16	437	469	496	189.3	568.7	378.6	437	469	496	189.3	568.7	378.6
17	462	494	528	199.7	568.7	399.5	462	494	528	199.7	568.7	399.5
18	488	520	560	210.6	568.7	421.1	488	520	560	210.6	568.7	421.1
19	524	556	585	225.5	568.7	451.1	524	556	585	225.5	568.7	451.1
20	547	583	617	250.8	568.7	487.5	547	583	617	188.1	568.7	376.1
21	572	608	649	261.8	568.7	487.5	572	608	649	196.4	568.7	392.7
22	596	632	671	311.3	854.3	622.6	596	632	671	233.5	854.3	467.0
23	623	659	696	324.9	854.3	649.9	623	659	696	243.7	854.3	487.4
24	648	684	728	337.6	854.3	675.1	648	684	728	253.2	854.3	506.3



Nominal Pipe Size	Table A						Table D					
	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)
26	685	721	754	267.2	854.3	534.4						
27	710	750	779	292.9	854.3	585.7	710	750	817	234.3	854.3	468.6
29	760	800	830	250.3	854.3	500.5	760	800	871	281.5	1271.0	563.1
30	785	825	855	258.2	854.3	516.5	785	825	896	290.5	1271.0	581.0
33	860	908	938	311.4	854.3	622.8	860	908	982	389.2	1805.1	778.4
35	910	958	989	274.0	854.3	548.1	910	958	1033	342.6	1805.1	773.6
36	935	983	1014	281.3	854.3	562.7	935	983	1058	351.7	1805.1	773.6
39	1035	1083	1090	310.5	854.3	620.9	1035	1083	1141	388.1	1805.1	776.2
42	1085	1137	1166	290.8	854.3	581.7	1085	1137	1217	363.5	1805.1	773.6
45	1160	1212	1249	310.3	854.3	620.7	1160	1212	1300	387.9	1805.1	775.8
48	1235	1287	1325	329.8	854.3	659.7	1235	1287	1376	360.8	1805.1	773.6
54	1435	1495	1497	450.6	1805.1	901.3	1435	1495	1497	400.6	1805.1	801.1
60	1535	1595	1668	481.2	1805.1	962.3	1535	1595	1665	423.4	2471.1	1059.0
66	1640	1710	1827	557.1	1805.1	1114.3	1640	1710	1824	490.3	2471.1	1059.0
72	1840	1910	1982	609.3	2471.1	1218.6	1840	1910	1979	543.8	3283.5	1407.2
78							2040	2116	2144	628.2	3283.5	1407.2
84							2140	2216	2309	767.9	5405.9	2316.8



Nominal Pipe Size	Table E						Table F					
	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)
1/2	26	38	53	9.6	97.3	41.7	26	38	53	9.6	97.3	41.7
3/4	32	45	59	12.5	97.3	41.7	32	45	59	12.5	97.3	41.7
1	40	54	69	16.4	97.3	41.7	40	55	70	22.2	195.3	83.7
1 1/4	48	62	73	19.2	97.3	41.7	48	64	81	27.9	195.3	83.7
1 1/2	54	70	84	24.7	97.3	49.5	54	73	88	37.6	195.3	83.7
2	67	86	97	45.3	195.3	90.6	67	91	110	59.1	195.3	118.2
2 1/2	83	102	110	54.8	195.3	109.6	83	107	129	35.5	195.3	83.7
3	97	116	129	63.1	195.3	126.1	97	121	148	40.8	195.3	83.7
3 1/2	110	129	148	35.4	195.3	83.7	110	134	161	45.6	195.3	91.3
4	124	143	167	39.5	195.3	83.7	124	148	173	50.9	195.3	101.7
5	150	169	192	47.2	195.3	94.5	150	175	214	76.0	350.9	152.0
6	175	194	214	65.6	350.9	150.4	175	200	239	58.4	350.9	150.4
7	200	224	239	95.2	350.9	190.3	200	230	271	74.7	350.9	150.4
8	226	250	271	106.8	350.9	213.7	226	256	303	83.7	350.9	167.3
9	248	276	303	87.7	350.9	175.3	248	284	331	118.7	568.7	243.7
10	274	302	334	96.3	350.9	192.7	274	310	357	130.2	568.7	260.4
12	324	352	382	131.9	568.7	263.8	324	360	414	114.2	568.7	243.7
13	356	384	414	144.3	568.7	288.7	356	392	442	142.6	854.3	366.1
14	382	410	446	154.5	568.7	308.9	382	418	468	152.5	854.3	366.1
15	407	435	471	164.2	568.7	328.4	407	443	493	161.9	854.3	366.1
16	437	469	496	189.3	568.7	378.6	437	481	525	155.4	854.3	366.1
17	462	494	528	199.7	568.7	399.5	462	506	557	163.8	854.3	366.1
18	488	520	560	157.9	568.7	315.8	488	532	579	194.1	1271.0	544.7
19	524	556	585	169.2	568.7	338.3	524	568	611	207.6	1271.0	544.7
20	547	583	617	188.1	568.7	376.1	547	595	642	189.3	1271.0	544.7
21	572	608	646	224.4	854.3	448.8	572	620	668	197.5	1271.0	544.7
22	596	632	671	233.5	854.3	467.0	596	644	693	205.4	1271.0	544.7
23	623	659	696	243.7	854.3	487.4	623	671	722	238.0	1805.1	773.6
24	648	684	725	284.8	1271.0	569.6	648	696	747	247.1	1805.1	773.6
27	710	750	814	263.6	1271.0	544.7	710	760	823	275.9	1805.1	773.6
29	760	800	868	312.8	1805.1	773.6	760	810	881	294.5	1805.1	773.6
30	785	825	893	322.8	1805.1	773.6	785	835	906	260.4	1805.1	773.6
33	860	908	982	389.2	1805.1	778.4	860	916	982	264.7	1805.1	773.6
35	910	958	1033	342.6	1805.1	773.6	910	966	1042	307.4	2471.1	1059.0
36	935	983	1058	351.7	1805.1	773.6	935	991	1068	315.5	2471.1	1059.0
39	1035	1083	1138	426.9	2471.1	1059.0	1035	1091	1157	309.3	2471.1	1059.0
42	1085	1137	1214	399.9	2471.1	1059.0	1085	1145	1233	336.1	2471.1	1059.0
45	1160	1212	1296	426.7	2471.1	1059.0	1160	1220	1319	391.1	3283.5	1407.2
48	1235	1287	1373	396.8	2471.1	1059.0	1235	1295	1401	393.1	3283.5	1407.2

Beneficiary: AIGI Industrial Group Ltd.

Acct. #: 7655 3888 0000 00866

Beneficiary Bank: China Everbright Bank, Nanjing Br. (SWIFT BIC: EVERCNBJJ1)

Intermediary Bank: Dresdner Bank AG Frankfurt AM Main DE (SWIFT BIC: DRESDEFF)



Nominal Pipe Size	Table H						Table J					
	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)
1/2	26	38	65	12.0	195.3	83.7	26	38	65	12.0	195.3	83.7
3/4	32	45	65	15.6	195.3	83.7	32	45	65	15.6	195.3	83.7
1	40	55	70	22.2	195.3	83.7	40	55	70	22.2	195.3	83.7
1 1/4	48	64	81	27.9	195.3	83.7	48	64	81	27.9	195.3	83.7
1 1/2	54	73	88	37.6	195.3	83.7	54	73	88	37.6	195.3	83.7
2	67	91	110	59.1	195.3	118.2	67	91	106	70.9	350.9	150.4
2 1/2	83	107	129	35.5	195.3	83.7	83	107	125	42.6	350.9	150.4
3	97	121	148	40.8	195.3	83.7	97	121	144	48.9	350.9	150.4
3 1/2	110	134	161	45.6	195.3	91.3	110	134	157	54.8	350.9	150.4
4	124	148	173	50.9	195.3	101.7	124	148	169	61.0	350.9	150.4
5	150	175	214	76.0	350.9	152.0	150	175	211	88.6	568.7	243.7
6	175	200	239	58.4	350.9	150.4	175	200	236	68.2	568.7	243.7
7	200	230	271	74.7	350.9	150.4	200	230	268	87.1	568.7	243.7
8	226	256	303	83.7	350.9	167.3	226	256	300	97.6	568.7	257.5
9	248	284	331	118.7	568.7	243.7	248	284	328	135.7	854.3	366.1
10	274	310	357	130.2	568.7	260.5	274	310	354	148.8	854.3	420.3
12	324	360	414	114.2	568.7	254.1	324	360	411	145.2	854.3	409.9
13	356	392	442	142.6	854.3	366.1	356	392	439	190.0	1271.0	544.7
14	382	418	468	152.5	854.3	378.8	382	418	465	213.1	1271.0	601.7
15	407	443	493	161.9	854.3	420.5	407	443	490	236.5	1271.0	667.8
16	437	481	525	155.4	854.3	398.0	437	481	522	223.9	1271.0	632.1
17	462	506	557	163.8	854.3	436.0	462	506	554	245.3	1271.0	692.5
18	488	532	579	194.1	1271.0	544.7	488	532	576	298.4	1805.1	842.4
19	524	568	611	207.6	1271.0	604.9	524	568	608	336.0	1805.1	948.8
20	547	595	642	189.3	1271.0	552.8	547	595	639	307.1	1805.1	867.2
21	572	620	668	197.5	1271.0	595.9	572	620	665	331.1	1805.1	934.8
22	596	644	693	205.4	1271.0	638.8	596	644	690	354.9	1805.1	1002.0
23	623	671	722	238.0	1805.1	773.6	623	671	719	420.9	2471.1	1188.4
24	648	696	747	252.8	1805.1	818.5	648	696	744	450.2	2471.1	1271.1



Nominal Pipe Size	Table K						Table R					
	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)
1/2	26	38	65	12.0	195.3	83.7	26	38	65	12.0	195.3	83.7
3/4	32	45	65	15.6	195.3	83.7	32	45	65	15.6	195.3	83.7
1	40	55	78	22.2	195.3	83.7	40	55	78	22.5	195.3	83.7
1 1/4	48	64	81	27.9	195.3	83.7	48	64	81	29.4	195.3	83.7
1 1/2	54	73	93	45.1	350.9	150.4	54	73	93	46.7	350.9	150.4
2	67	91	110	29.5	195.3	83.7	67	91	110	30.4	195.3	83.7
2 1/2	83	107	125	42.6	350.9	150.4	83	107	125	47.4	350.9	150.4
3	97	121	144	48.9	350.9	150.4	97	121	144	57.9	350.9	155.0
3 1/2	110	134	160	63.9	568.7	243.7	110	134	160	79.9	568.7	243.7
4	124	148	173	72.9	568.7	243.7	124	148	173	94.2	568.7	252.2
5	150	175	211	65.2	568.7	243.7	150	175	211	84.3	568.7	243.7
6	175	200	236	81.8	568.7	243.7	175	200	236	105.7	568.7	283.0
7	200	230	265	122.4	854.3	366.1	200	230	265	158.0	854.3	423.2
8	226	256	290	147.1	854.3	380.1	226	256	296	190.0	854.3	508.8
9	248	284	328	135.3	854.3	366.1	248	284	328	174.8	854.3	468.1
10	274	310	354	157.6	854.3	407.1	274	310	360	203.6	854.3	545.1
12	324	360	401	230.6	1271.0	595.7	324	360	427	297.8	1271.0	797.5
13	356	392	449	298.0	1805.1	773.6	356	392	461	385.0	1805.1	1030.7
14	382	418	474	334.3	1805.1	863.5	382	418	493	431.8	1805.1	1156.0
15	407	443	506	296.8	1805.1	773.6	407	443	519	383.4	1805.1	1026.5
16	437	481	531	351.2	1805.1	907.2	437	481	550	453.6	1805.1	1214.5
17	462	506	563	384.7	1805.1	993.9	462	506	576	497.0	1805.1	1330.6
18	488	532	617	463.3	2471.1	1197.0	488	532	636	598.5	2471.1	1602.4
20	547	595	671	624.4	3283.5	1613.0	547	595	690	806.5	3283.5	2159.3
22	596	644	728	961.9	8288.8	3552.3	596	644	754	1242.5	8288.8	3552.3

Beneficiary: AIGI Industrial Group Ltd.

Acct. #: 7655 3888 0000 00866

Beneficiary Bank: China Everbright Bank, Nanjing Br. (SWIFT BIC: EVERCNBJNJ1)

Intermediary Bank: Dresdner Bank AG Frankfurt AM Main DE (SWIFT BIC: DRESDEFF)



Nominal Pipe Size	Table S						Table T					
	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)	D1 (mm)	D2 (mm)	D3 (mm)	Minimum Torque (N.m)	Maximum Torque (N.m)	Preferred Torque (N.m)
1/2	24	38	68	19.4	350.9	150.4	24	38	80	29.0	350.9	150.4
3/4	30	45	68	26.2	350.9	150.4	30	45	80	39.1	350.9	150.4
1	39	55	80	37.1	350.9	150.4	39	55	87	55.4	350.9	172.4
1 1/4	46	64	87	49.5	350.9	150.4	46	64	96	86.3	568.7	268.7
1 1/2	52	73	100	65.0	350.9	194.2	52	73	112	48.6	350.9	151.1
2	60	86	112	45.9	350.9	150.4	60	86	125	68.5	350.9	213.3
2 1/2	74	100	125	58.4	350.9	174.6	74	100	141	101.9	568.7	317.1
3	85	114	141	86.0	568.7	257.0	85	114	163	146.9	854.3	457.2
3 1/2	97	126	166	101.2	568.7	302.4	97	126	185	194.4	1271.0	605.1
4	118	148	176	151.4	854.3	452.5	118	148	204	254.5	1271.0	792.3
4 1/2	130	162	188	105.4	854.3	531.2	130	162	227	177.1	854.3	551.2
5	143	175	211	117.9	568.7	352.2	143	175	242	226.4	1271.0	704.8
6	165	200	246	170.9	854.3	510.7	165	200	284	319.2	1805.1	993.5
7	193	230	287	245.5	1271.0	733.6	193	230	331	448.3	2471.1	1395.6
8	219	256	322	327.4	1805.1	978.4	219	256	366	587.0	3283.5	1827.3
9	243	284	357	268.0	1271.0	800.8	243	284	407	489.4	2471.1	1523.4
10	269	310	392	346.5	1805.1	1035.2	269	310	449	621.1	3283.5	1933.5
11	294	335	433	177.1	2471.1	1303.4	294	335	487	829.4	5405.9	2581.9
12	320	364	468	555.2	3283.5	1658.9	320	364	525	967.7	5405.9	3012.3
13	352	396	500	644.0	3283.5	1924.3	352	396	557	1282.9	8288.8	3993.5
14	378	422	538	576.7	3283.5	1723.2						
15	403	447	579	692.3	4256.9	2068.5						
16	433	481	614	857.8	5405.9	2563.1						

Maximum Torque based on ASTM A193 B7 bolts.

Preferred Torque based on the maximum working pressure of BS10 flanges.



Applicable standards

PN Series	Class Series	JIS Series	BS10 Series
EN 1092	ASME B16.5	JIS B2220	BS 10
EN 1514	ASME B16.47	JIS B2404	
BS 4504	ASME B16.20		
BS 4865	ASME B 16.21		
DIN	EN 1759		
	EN 12560		
	BS 1560		
	BS 3381		
	JPI-7S-15		
	JPI-7S-41		
	JPI-7S-43		
	MSS SP-44 (A series)		
	API 605 (B series)		