

Just Valves Pty Ltd

TECHNICAL REFERENCE SECTION

Contents	Reference Page
♦ Flange Tables	
♦ Table D - H	Ref - I
♦ DIN & PIN 16	Ref - I
♦ ANSI 150 - 1500	Ref - II
♦ JIS 5K, 10K & 16K	Ref- III
♦ Conversion	
♦ Temperature	Ref - IV
♦ Length	Ref - IV
♦ Pressure	Ref - V
♦ Valve Sizing	
♦ Air & Gases	Ref - VI
♦ Water & Liquids	Ref - VI
♦ Saturated Steam	Ref - VI

Just Valves Pty Ltd

Flange Tables - AS2129 & DIN

TABLE D																			
NB Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	95	100	115	120	135	150	165	185	215	255	280	335	405	455	525	580	640	705	825
PCD	67	73	83	87	98	114	127	146	178	210	235	292	356	406	470	521	584	641	756
No BOLTS	4	4	4	4	4	4	4	4	4	8	8	8	8	12	12	12	12	16	16
DIA OF HOLE	14	14	14	14	14	18	18	18	18	18	18	18	22	22	26	26	26	26	30
BOLT SIZE	M12	M12	M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M24	M24	M24	M24	M27
BOLT LENGTH	45	45	45	50	50	60	60	60	65	65	65	70	75	85	95	95	100	110	120

TABLE E																			
NB Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	95	100	115	120	135	150	165	185	215	255	280	335	405	455	525	580	640	705	825
PCD	67	73	83	87	98	114	127	146	178	210	235	292	356	406	470	521	584	641	756
No BOLTS	4	4	4	4	4	4	4	4	8	8	8	8	12	12	12	12	16	16	16
DIA OF HOLE	14	14	14	14	14	18	18	18	18	18	22	22	22	26	26	26	26	26	33
BOLT SIZE	M12	M12	M12	M12	M12	M16	M16	M16	M16	M16	M20	M20	M20	M24	M24	M24	M24	M24	M30
BOLT LENGTH	45	45	45	50	50	60	60	60	65	65	65	65	75	85	95	100	120	110	140

TABLE H																			
NB Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	115	115	120	135	140	165	185	205	230	280	305	370	430	490	550	610	675	735	850
PCD	83	83	87	98	105	127	146	165	191	235	260	324	381	438	495	552	610	673	781
No BOLTS	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16	20	20	24	24
DIA OF HOLE	18	18	18	18	18	18	18	18	18	22	22	22	26	26	30	30	33	33	36
BOLT SIZE	M16	M16	M16	M16	M16	M16	M16	M16	M16	M20	M20	M20	M24	M24	M27	M27	M30	M30	M33
BOLT LENGTH	60	60	60	65	65	75	75	75	85	95	95	100	120	110	130	140	160	170	200

DIN - PN16																			
NB Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	95	105	115	140	150	165	185	200	220	250	285	340	405	450	520	580	640	715	840
PCD	65	75	85	100	110	125	145	160	180	210	240	295	355	410	470	525	585	650	770
No BOLTS	4	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16	20	20	20
DIA OF HOLE	14	14	14	18	18	18	18	18	18	18	22	22	26	26	26	30	30	33	36
BOLT SIZE	M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M24	M24	M24	M27	M27	M30	M33
BOLT LENGTH	50	55	55	60	60	65	65	70	75	80	90	90	100	100	120	120	120	130	140

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Flange Tables - ANSI

CLASS 150																			
Nominal Bore Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	89	98	108	117	127	152	178	191	229	254	279	343	406	483	535	597	635	700	815
PCD	60.5	70	79.5	89	98.5	121	140	153	191	216	242	299	362	432	476	540	578	635	750
No BOLTS	4	4	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16	20	20
DIA OF HOLE	16	16	16	16	16	20	20	20	20	23	23	23	29	26	29	29	32	32	35
BOLT SIZE	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	3/4"	3/4"	3/4"	7/8"	7/8"	1"	1"	1 1/8"	1 1/8"	1 1/4"
BOLT LENGTH	60	65	65	70	70	85	90	90	90	90	100	110	115	120	130	130	150	160	175

CLASS 300																			
Nominal Bore Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	95	117	124	133	155	165	190	209	254	280	318	381	445	521	585	648	711	775	915
PCD	66.5	82.5	89	98.5	115	127	149	168	200	235	270	330	387	451	515	572	629	686	813
No BOLTS	4	4	4	4	4	8	8	8	8	8	12	12	16	16	20	20	24	24	24
DIA OF HOLE	16	19	19	19	22	19	22	22	22	22	22	26	29	32	32	35	35	35	41
BOLT SIZE	1/2"	5/8"	5/8"	5/8"	3/4"	5/8"	3/4"	3/4"	3/4"	3/4"	3/4"	7/8"	1"	1 1/8"	1 1/8"	1 1/4"	1 1/4"	1 1/4"	1 1/2"
BOLT LENGTH	65	75	80	80	90	90	100	110	110	120	125	140	155	170	175	190	195	205	230

CLASS 600																			
Nominal Bore Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	95	118	124	133	156	165	191	210	273	330	336	419	508	559	603	686	743	813	940
PCD	67	83	89	98	114	127	149	168	216	267	292	349	432	449	527	603	654	724	838
No BOLTS	4	4	4	4	4	8	8	8	8	8	12	12	16	20	20	20	20	24	24
BOLT HOLE DIA	16	19	19	19	22	19	22	22	25	29	29	32	35	35	38	41	44	44	51
BOLT SIZE	1/2"	5/8"	5/8"	5/8"	3/4"	5/8"	3/4"	3/4"	7/8"	1"	1"	1 1/8"	1 1/4"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 5/8"	1 7/8"
BOLT LENGTH	80	90	90	100	105	105	120	125	145	165	170	195	215	220	235	255	275	290	330

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Flange Tables - ANSI

CLASS 900																			
Nominal Bore Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	121	130	149	159	178	216	245	241	292	349	381	470	546	610	641	705	788	857	1042
PCD	83	89	102	111	124	165	191	191	235	279	382	394	470	533	559	616	686	749	902
No BOLTS	4	4	4	4	4	8	8	8	8	8	12	12	16	20	20	20	20	20	20
BOLT HOLE DIA	22	22	25	25	29	25	29	25	32	35	32	38	38	38	41	44	51	54	67
BOLT SIZE	3/4"	3/4"	7/8"	7/8"	1"	7/8"	1"	7/8"	1 1/8"	1 1/4"	1 1/8"	1 3/8"	1 3/8"	1 3/8"	1 1/2"	1 5/8"	1 7/8"	2"	2 1/2"
BOLT LENGTH	105	115	125	125	140	145	160	145	170	190	195	220	235	255	275	285	325	345	435

CLASS 1500																			
Nominal Bore Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	121	130	149	159	178	216	245	267	311	375	394	485	584	673	749	826	915	984	1169
PCD	83	89	102	111	124	165	191	203	241	292	318	393	483	572	635	705	775	832	991
No BOLTS	4	4	4	4	4	8	8	8	8	8	12	12	12	16	16	16	16	16	16
BOLT HOLE DIA	22	22	25	25	29	25	29	32	35	41	38	44	51	54	60	67	73	79	92
BOLT SIZE	3/4"	3/4"	7/8"	7/8"	1"	7/8"	1"	1 1/8"	1 1/4"	1 1/2"	1 3/8"	1 5/8"	1 7/8"	2"	2 1/4"	2 1/2"	2 3/4"	3"	3 1/2"
BOLT LENGTH	105	115	125	125	140	145	160	180	195	250	260	290	335	375	405	445	495	540	615

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Flange Tables - JIS B2220

JIS 5K																			
NB Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	80	85	95	115	120	130	155	180	200	235	265	320	385	430	480	540	605	655	770
PCD	60	65	75	90	95	105	130	145	165	200	230	280	345	390	435	495	555	605	715
No BOLTS	4	4	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16	20	20
DIA OF HOLE	12	12	12	15	15	15	15	19	19	19	19	23	23	23	25	25	25	25	27
BOLT SIZE	M10	M10	M10	M12	M12	M12	M12	M16	M16	M16	M16	M20	M20	M20	M22	M22	M22	M22	M24

JIS 10K																			
NB Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	95	100	125	135	140	155	175	185	210	250	280	330	400	445	490	560	620	675	795
PCD	70	75	90	100	105	120	140	150	175	210	240	290	355	400	455	510	565	620	730
No BOLTS	4	4	4	4	4	4	4	8	8	8	8	12	12	16	16	16	20	20	24
DIA OF HOLE	15	15	19	19	19	19	19	19	19	23	23	23	25	25	25	27	27	27	33
BOLT SIZE	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M20	M22	M22	M22	M24	M24	M24	M30

JIS 16K																			
NB Size	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
OD	95	100	125	135	140	155	175	200	225	270	305	350	430	480	540	605	675	730	845
PCD	70	75	90	100	105	120	140	160	185	225	260	305	380	430	480	540	605	660	770
No BOLTS	4	4	4	4	4	8	8	8	8	8	12	12	12	16	16	16	20	20	24
DIA OF HOLE	15	15	19	19	19	19	19	23	23	25	25	25	27	27	33	33	33	33	39
BOLT SIZE	M12	M12	M16	M16	M16	M16	M16	M20	M20	M2	M22	M22	M24	M24	M30	M30	M30	M30	M36

Ref - III.

Just Valves Pty Ltd

Temperature Conversion

C	F to C	F
-51	-60	-76
-46	-50	-58
-40	-40	-40
-34	-30	-22
-29	-20	-4
-23	-10	14
-17.8	0	32
-17.2	1	33.8
-16.7	2	35.6
-16.1	3	37.4
-15.6	4	39.2
-15	5	41
-14.4	6	42.8
-13.9	7	44.6
-13.3	8	46.4
-12.8	9	48.2
-12.2	10	50
-11.7	11	51.8
-11.1	12	53.6
-10.6	13	55.4
-10	14	57.2
-9.4	15	59
-8.9	16	60.8
-8.3	17	62.6
-7.8	18	64.4
-7.2	19	66.2
-6.7	20	68
-6.1	21	69.8
-5.6	22	71.6

C	F to C	F
-5	23	73.4
-4.4	24	75.2
-3.9	25	77
-3.3	26	78.8
-2.8	27	80.6
-2.2	28	82.4
-1.7	29	84.2
-1.1	30	86
-0.6	31	87.8
0	32	89.6
0.6	33	91.4
1.1	34	93.2
1.7	35	95
2.2	36	96.8
2.8	37	98.6
3.3	38	100.4
3.9	39	102.2
4.4	40	104
5	41	105.8
5.6	42	107.6
6.1	43	109.4
6.7	44	111.2
7.2	45	113
7.8	46	114.8
8.3	47	116.6
8.9	48	118.4
9.4	49	120.2
10	50	122
10.6	51	123.8

C	F to C	F
11.1	52	125.6
11.7	53	127.4
12.2	54	129.2
12.8	55	131
13.3	56	132.8
13.9	57	134.6
14.4	58	136.4
15	59	138.2
15.6	60	140
16.1	61	141.8
16.7	62	143.6
17.2	63	145.4
17.8	64	147.2
18.3	65	149
18.9	66	150.8
19.4	67	152.6
20	68	154.4
20.6	69	156.2
21.1	70	158
21.7	71	159.8
22.2	72	161.6
22.8	73	163.4
23.3	74	165.2
23.9	75	167
24.4	76	168.8
25	77	170.6
25.6	78	172.4
26.1	79	174.2
26.7	80	176

C	F to C	F
27.2	81	177.8
27.8	82	179.6
28.3	83	181.4
28.9	84	183.2
29.4	85	185
30	86	186.8
30.6	87	188.6
31.1	88	190.4
31.7	89	192.2
32.2	90	194
32.8	91	195.8
33.3	92	197.6
33.9	93	199.4
34.4	94	201.2
35	95	203
35.6	96	204.8
36.1	97	206.6
36.7	98	208.4
37.2	99	210.2
37.8	100	212
43	110	230
49	120	248
54	130	266
60	140	284
66	150	302
71	160	320
77	170	338
82	180	356
88	190	374

C = (Centigrade 5/9 + 32) F = (Fahrenheit 5/9 -32)

Length Conversion

Inches	Ft	Mm	Cm	M
1	0.08	25.4	2.54	0.0254
2	0.17	50.8	5.08	0.0508
3	0.25	76.2	7.62	0.0762
4	0.33	101.6	10.16	0.1016
5	0.42	127	12.7	0.127
6	0.50	152.4	15.24	0.1524
7	0.58	177.8	17.78	0.1778
8	0.67	203.2	20.32	0.2032
9	0.75	228.6	22.86	0.2286
10	0.83	254	25.4	0.254
11	0.92	279.4	27.94	0.2794
12	1.0	304.8	30.48	0.3048
13	1.1	330.2	33.02	0.3302
14	1.2	355.6	35.56	0.3556
15	1.2	381	38.1	0.381
16	1.3	406.4	40.64	0.4064
17	1.4	431.8	43.18	0.4318
18	1.5	457.2	45.72	0.4572

Inches	Ft	Mm	Cm	M
19	1.6	482.6	48.26	0.4826
20	1.7	508	50.8	0.508
21	1.7	533.4	53.34	0.5334
22	1.8	558.8	55.88	0.5588
23	1.9	584.2	58.42	0.5842
24	2.0	609.6	60.96	0.6096
25	2.1	635	63.5	0.635
26	2.2	660.4	66.04	0.6604
27	2.2	685.8	68.58	0.6858
28	2.3	711.2	71.12	0.7112
29	2.4	736.6	73.66	0.7366
30	2.5	762	76.2	0.762
31	2.6	787.4	78.74	0.7874
32	2.7	812.8	81.28	0.8128
33	2.7	838.2	83.82	0.8382
34	2.8	863.6	86.36	0.8636
35	2.9	889	88.9	0.889
36	3.0	914.4	91.44	0.9144

Ref - IV.

Just Valves Pty Ltd

Pressure Conversion

PSI	MPa	kgf/cm2	BARS	Atmos- pheres	PSI	MPa	kgf/cm2	BARS	Atmos- pheres	PSI	MPa	kgf/cm2	BARS	Atmos- pheres	PSI	MPa	kgf/cm2	BARS	Atmos- pheres
25	0.17	1.76	1.72	1.7	2500	17.24	175.77	172.5	170	5200	35.85	365.6	358.8	353.6	7900	54.47	555.42	545.1	537.2
50	0.34	3.52	3.45	3.4	2600	17.93	182.8	179.4	176.8	5300	36.54	372.63	365.7	360.4	8000	55.16	562.46	552	544
75	0.52	5.27	5.18	5.1	2700	18.62	189.83	186.3	183.6	5400	37.23	379.66	372.6	367.2	8100	55.85	569.49	558.9	550.8
100	0.69	7.03	6.9	6.8	2800	19.3	196.86	193.2	190.4	5500	37.92	386.69	379.5	374	8200	56.54	576.52	565.8	557.6
200	1.38	14.06	13.8	13.6	2900	19.99	203.89	200.1	197.2	5600	38.61	393.72	386.4	380.8	8300	57.23	583.55	572.7	564.4
300	2.07	21.09	20.7	20.4	3000	20.68	210.92	207	204	5700	39.3	400.75	393.3	387.6	8400	57.92	590.58	579.6	571.2
400	2.76	28.12	27.6	27.2	3100	21.37	217.95	213.9	210.8	5800	39.99	407.78	400.2	394.4	8500	58.61	597.61	586.5	578
500	3.45	35.15	34.5	34	3200	22.06	224.98	220.8	217.6	5900	40.68	414.81	407.1	401.2	8600	59.3	604.64	593.4	584.8
600	4.14	42.18	41.4	40.8	3300	22.75	232.01	227.7	224.4	6000	41.37	421.84	414	408	8700	59.98	611.67	600.3	591.6
700	4.83	49.21	48.3	47.6	3400	23.44	239.04	234.6	231.2	6100	42.06	428.87	420.9	414.8	8800	60.67	618.7	607.2	598.4
800	5.52	56.24	55.2	54.4	3500	24.13	246.07	241.5	238	6200	42.75	435.9	427.8	421.6	8900	61.36	625.73	614.1	605.2
900	6.2	63.28	62.1	61.2	3600	24.82	253.1	248.4	244.8	6300	43.44	442.93	434.7	428.4	9000	62.05	632.76	621	612
1000	6.9	70.31	69	68	3700	25.51	260.14	255.3	251.6	6400	44.13	449.96	441.6	435.2	9100	62.74	639.79	627.9	618.8
1100	7.58	77.34	75.9	74.8	3800	26.2	267.17	262.2	258.4	6500	44.82	457	448.5	442	9200	63.43	646.82	634.8	625.6
1200	8.27	84.37	82.8	81.6	3900	26.89	274.2	269.1	265.2	6600	45.51	464.03	455.4	448.8	9300	64.12	653.86	641.7	632.4
1300	8.96	91.4	89.7	88.4	4000	27.58	281.23	276	272	6700	46.2	471.06	462.3	455.6	9400	64.81	660.89	648.6	639.2
1400	9.65	98.43	96.6	95.2	4100	28.27	288.26	282.9	278.8	6800	46.88	478.09	469.2	462.4	9500	65.5	667.92	655.5	646
1500	10.34	105.46	103.5	102	4200	28.96	295.29	289.8	285.6	6900	47.57	485.12	476.1	469.2	9600	66.19	674.95	662.4	652.8
1600	11.03	112.49	110.4	108.8	4300	29.65	302.32	296.7	292.4	7000	48.26	492.15	483	476	9700	66.88	681.98	669.3	659.6
1700	11.72	119.52	117.3	115.6	4400	30.34	309.35	303.6	299.2	7100	48.95	499.18	489.9	482.8	9800	67.57	689.01	676.2	666.4
1800	12.41	126.55	124.2	122.4	4500	31.03	316.38	310.5	306	7200	49.64	506.21	496.8	489.6	9900	68.26	696.04	683.1	673.2
1900	13.1	133.58	131.1	129.2	4600	31.72	323.41	317.4	312.8	7300	50.33	513.24	503.7	496.4	10000	68.95	703.07	690	680
2000	13.79	140.61	138	136	4700	32.41	330.44	324.3	319.6	7400	51.02	520.27	510.6	503.2	11000	75.84	773.38	759	748
2100	14.48	147.64	144.9	142.8	4800	33.1	337.47	331.2	326.4	7500	51.71	527.3	517.5	510	12000	82.74	843.68	828	816
2200	15.17	154.68	151.8	149.6	4900	33.78	344.5	338.1	333.2	7600	52.4	534.33	524.4	516.8	13000	89.63	913.99	897	884
2300	15.86	161.71	158.7	156.4	5000	34.47	351.54	345	340	7700	53.09	541.36	531.3	523.6	14000	96.53	984.3	966	952
2400	16.55	168.74	165.6	163.2	5100	35.16	358.57	351.9	346.8	7800	53.78	548.39	538.2	530.4	15000	103.42	1054.6	1035	1020