

Dimensions Lap Joint Flanges & Stud Bolts ASME B16.5

[1/2]						
CL	150	300	600	900	1500	2500
DIA A	30	38	38	38	38	43
DIA D	90	95	95	120	120	135
THK B	11.2	14.3	14.3	22.3	22.3	30.2
DIA K	60.3	66.7	66.7	82.6	82.6	88.9
H	16	22	22	32	32	40
NO. L	4	4	4	4	4	4
DIA L	15.9	15.9	15.9	22.2	22.2	22.2
Stud Bolts Diameter x Length						
DIA (in)	1/2	1/2	1/2	3/4	3/4	3/4
Len mm	55	65	75	110	110	120

[3/4]						
CL	150	300	600	900	1500	2500
DIA A	38	48	48	44	44	51
DIA D	100	115	115	130	130	140
THK B	12.8	15.9	15.9	25.4	25.4	31.8
DIA K	69.9	82.6	82.6	88.9	88.9	95
H	16	25	25	35	35	43
NO. L	4	4	4	4	4	4
DIA L	15.9	19.1	19.1	22.2	22.2	22.2
Stud Bolts Diameter x Length						
DIA (in)	1/2	5/8	5/8	3/4	3/4	3/4
Len mm	65	75	90	115	115	125

[1]						
CL	150	300	600	900	1500	2500
DIA A	49.2	54	54	52	52	57
DIA D	110	125	125	150	150	160
THK B	14.3	17.5	17.5	28.6	28.6	35
DIA K	79.4	88.9	88.9	101.6	101.6	107.4
H	17	27	27	41	41	48
NO. L	4	4	4	4	4	4
DIA L	15.9	19.1	19.1	25.4	25.4	25.4
Stud Bolts Diameter x Length						
DIA (in)	1/2	5/8	5/8	7/8	7/8	7/8
Len mm	65	75	90	125	125	140

[1 1/4]						
CL	150	300	600	900	1500	2500
DIA A	59	64	64	64	64	73
DIA D	115	135	135	160	160	185
THK B	15.9	19.1	20.7	28.6	28.6	38.1
DIA K	88.9	98.4	98.4	111.1	111.1	130.2
H	21	27	29	41	41	52
NO. L	4	4	4	4	4	4
DIA L	15.9	19.1	19.1	25.4	25.4	28.6
Stud Bolts Diameter x Length						
DIA (in)	1/2	5/8	5/8	7/8	7/8	1
Len mm	70	85	95	125	125	150

[1 1/2]						
CL	150	300	600	900	1500	2500
DIA A	65	70	70	70	70	79
DIA D	125	155	155	180	180	205
THK B	17.5	20.7	22.3	31.8	31.8	44.5
DIA K	98.4	114.3	114.3	123.8	123.8	146
H	22	30	32	44	44	60
NO. L	4	4	4	4	4	4
DIA L	15.9	22.2	22.2	28.6	28.6	31.8
Stud Bolts Diameter x Length						
DIA (in)	1/2	3/4	3/4	1	1	1?
Len mm	70	90	110	140	140	170

[2]						
CL	150	300	600	900	1500	2500
DIA A	78	84	84	105	105	95
DIA D	150	165	165	215	215	235
THK B	19.1	22.3	25.4	38.1	38.1	50.9
DIA K	120.7	127	127	165.1	165.1	171.4
H	25	33	37	57	57	70
NO. L	4	8	8	8	8	8
DIA L	19.1	19.1	19.1	25.4	25.4	28.6
Stud Bolts Diameter x Length						
DIA (in)	5/8	5/8	5/8	7/8	7/8	1
Len mm	85	90	110	145	145	180

[2½]						
CL	150	300	600	900	1500	2500
DIA A	90	100	100	125	125	114
DIA D	180	190	190	245	245	265
THK B	22.3	25.5	28.6	41.3	41.3	57.2
DIA K	139.7	149.2	149.2	190.5	190.5	197
H	29	38	41	64	64	79
NO. L	4	8	8	8	8	8
DIA L	19.1	22.2	22.2	28.6	28.6	31.8
Stud Bolts Diameter x Length						
DIA (in)	5/8	3/4	3/4	1	1	1?
Len mm	90	100	120	160	160	195

[3]						
CL	150	300	600	900	1500	2500
DIA A	108	115	115	127	125	125
DIA D	190	210	210	240	265	305
THK B	23.9	28.6	31.8	38.1	47.7	66.7
DIA K	152.4	168.3	168.3	190.5	205	230
H	30	43	46	54	73	92
69.6	79.6	89.4	108.4	123.4	174.4	
NO. L	4	8	8	8	8	8
DIA L	19.1	22.2	22.2	25.4	31.8	34.9
Stud Bolts Diameter x Length						
DIA (in)	8-May	4-Mar	4-Mar	8-Jul	1?	1¼
Len mm	90	110	125	145	180	220

[3½]						
CL	150	300	600	900	1500	2500
DIA A	122	135	133	...	...	...
DIA D	215	230	230	...	...	...
THK B	23.9	30.2	35	...	...	...
DIA K	177.8	184.2	184.2	...	...	...
H	32	44	49	...	...	...
71.6	80.6	92.4	...	...	...	...
NO. L	8	8	8	...	...	...
DIA L	19.1	22.2	25.4	...	...	...
Stud Bolts Diameter x Length						
DIA (in)	8-May	4-Mar	8-Jul	...	...	...
Len mm	90	110	140	...	...	...

[4]						
CL	150	300	600	900	1500	2500
DIA A	135	146	152	160	162	165
DIA D	230	255	275	290	310	355
THK B	23.9	31.8	38.1	44.5	54	76.2
DIA K	190.5	200	215.9	235	240	273
H	33	48	54	70	90	108
76.6	85.6	108.4	120.4	130.4	196.4	
NO. L	8	8	8	8	8	8
DIA L	19.1	22.2	25.4	31.8	34.9	41.3
Stud Bolts Diameter x Length						
DIA (in)	8-May	4-Mar	8-Jul	1?	1¼	1½
Len mm	90	115	145	170	195	255

[6]						
CL	150	300	600	900	1500	2500
DIA A	192	206	222	235	230	235
DIA D	280	320	355	380	395	485
THK B	25.5	36.6	47.7	55.6	82.6	108
DIA K	241.3	269.9	292.1	317.5	320	368
H	40	52	67	86	119	152
NO. L	8	12	12	12	12	8
DIA L	22.2	22.2	28.6	31.8	38.1	54
Stud Bolts Diameter x Length						
DIA (in)	4-Mar	4-Mar	1	1?	1?	2
Len mm	100	120	170	190	260	345

[8]						
CL	150	300	600	900	1500	2500
DIA A	246	260	272	298	290	305
DIA D	345	380	420	470	485	550
THK B	28.6	41.3	55.6	63.5	92.1	127
DIA K	298.5	330.2	349.2	393.7	395	438.1
H	44	62	76	114	143	178
101.6	111.6	139.4	168.4	219.4	324.4	
NO. L	8	12	12	12	12	12
DIA L	22.2	25.4	31.8	38.1	44.5	54
Stud Bolts Diameter x Length						
DIA (in)	4-Mar	8-Jul	1?	1?	1?	2
Len mm	110	140	190	220	290	380

[10]						
CL	150	300	600	900	1500	2500
DIA A	305	321	345	368	368	375
DIA D	405	445	510	545	585	675
THK B	30.2	47.7	63.5	69.9	108	165
DIA K	362	387.4	431.8	469.9	485	539.7
H	49	95	111	127	178	229
101.6	117.6	158.4	190.4	260.4	425.4	
NO. L	12	16	16	16	12	12
DIA L	25.4	28.6	34.9	38.1	50.8	66.7
Stud Bolts Diameter x Length						
DIA (in)	8-Jul	1	1¼	1?	1?	2½
Len mm	115	160	215	235	335	490

[12]						
CL	150	300	600	900	1500	2500
DIA A	365	375	400	420	451	441
DIA D	485	520	560	610	675	760
THK B	31.8	50.9	66.7	79.4	123.9	184.2
DIA K	431.8	450.8	489	533.4	571.5	619.1
H	56	102	117	143	219	254
114.6	130.6	162.4	206.4	289.4	470.4	
NO. L	12	16	20	20	16	12
DIA L	25.4	31.8	34.9	38.1	54	73
Stud Bolts Diameter x Length						
DIA (in)	8-Jul	1?	1¼	1?	2	2½
Len mm	120	170	220	255	375	540

[14]						
CL	150	300	600	900	1500	2500
DIA A	400	425	432	451	495	...
DIA D	535	585	605	640	750	...
THK B	35	54	69.9	85.8	133.4	...
DIA K	476.3	514.4	527	558.8	635	...
H	79	111	127	156	241	...
126.6	142.6	171.4	219.4	304.4	...	...
NO. L	12	20	20	20	16	...
DIA L	28.6	31.8	38.1	41.3	60.3	...
Stud Bolts Diameter x Length						
DIA (in)	1	1?	1?	1½	2¼	...
Len mm	135	180	235	275	405	...

[16]						
CL	150	300	600	900	1500	2500
DIA A	457	485	495	508	550	...
DIA D	595	650	685	705	825	...
THK B	36.6	57.2	76.2	88.9	146.1	...
DIA K	539.8	571.5	603.2	616	705	...
H	87	121	140	165	260	...
NO. L	16	20	20	20	16	...
DIA L	28.6	34.9	41.3	44.5	66.7	...
Stud Bolts Diameter x Length						
DIA (in)	1	1¼	1½	1?	2½	...
Len mm	135	190	255	285	445	...

[18]						
CL	150	300	600	900	1500	2500
DIA A	505	533	545	565	597	...
DIA D	635	710	745	785	915	...
THK B	39.7	60.4	82.6	101.6	162	...
DIA K	577.9	628.6	654	685.8	775	...
H	97	130	152	190	276	...
NO. L	16	24	20	20	16	...
DIA L	31.8	34.9	44.5	50.8	73	...
Stud Bolts Diameter x Length						
DIA (in)	1?	1¼	1?	1?	2½	...
Len mm	145	195	275	325	495	...

[20]						
CL	150	300	600	900	1500	2500
DIA A	560	587	610	622	640	...
DIA D	700	775	815	855	985	...
THK B	42.9	63.6	88.9	108	177.8	...
DIA K	635	685.8	723.9	749.3	831.8	...
H	103	140	165	210	292	...
NO. L	20	24	24	20	16	...
DIA L	31.8	34.9	44.5	54	79.4	...
Stud Bolts Diameter x Length						
DIA (in)	1?	1¼	1?	2	3	...
Len mm	160	205	285	350	540	...

[24]						
CL	150	300	600	900	1500	2500
DIA A	663	702	718	750	762	...
DIA D	815	915	940	1040	1170	...
THK B	47.7	69.9	101.6	139.7	203.2	...
DIA K	749.3	812.8	838.2	901.7	990.6	...
H	111	152	184	267	330	...
NO. L	20	24	24	20	16	...
DIA L	34.9	41.3	50.8	66.7	92.1	...
Stud Bolts Diameter x Length						
DIA (in)	1¼	1½	1?	2½	3½	...
Len mm	170	230	330	440	615	...

DIMENSIONAL TOLERANCES OF WELD NECK FLANGES ASME B16.5

Feature	Condition	Tolerance (Metric)	Tolerance (Inch)
Outside Diameter (Note 1)	≤ 24	1.6 mm	0.06 in
	> 24	±3.2 mm	±0.12 in
Diameter Hub at Base	≤ 24	1.6 mm	0.06 in
	> 24	±3.2 mm	±0.12 in
Inside Diameter	≤ 10	±0.8 mm	±0.03 in
	12 thru 18	1.6 mm	0.06 in
	≥ 20	+3.2 mm / -1.6 mm	+0.12 in / -0.06 in
Diameter Hub at Point of Welding	≤ 5	+2.4 mm / -0.8 mm	+0.09 in / -0.03 in
	≥ 6	+4.0 mm / -0.8 mm	+0.15 in / -0.03 in
Drilling – Bolt Circle		1.6 mm	0.06 in
Drilling – Bolt Hole Spacing	...	±0.8 mm	±0.03 in
Eccentricity – Bolt Circle	≤ 2½	0.8 mm max	0.03 in max
	≥ 3	1.6 mm max	0.06 in max
Thickness	≤ 18	+3.2 mm / -0	+0.12 in / -0
	≥ 20	+4.8 mm / -0	+0.18 in / -0
Length thru Hub	≤ 10	1.6 mm	0.06 in
	≥ 12	±3.2 mm	±0.12 in
Diameter Contact Face	1.6 mm RF	±0.8 mm	±0.03 in
	6.35 mm RF	±0.4 mm	±0.01 in
Tongue & Groove		±0.4 mm	±0.01 in
Male-Female	...	±0.4 mm	±0.01 in
Additional Values		1 mm	0.03 in
		2 mm	0.07 in
		6 mm	0.23 in

Note #	Description
1	Dimensions are in millimeters unless otherwise indicated.
2	The length of the Stud Bolt does not include the height of the chamfers (points)
3	ID = Depending on the wall thickness of the pipe, must be specified by the purchaser.