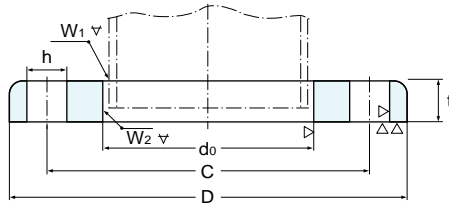


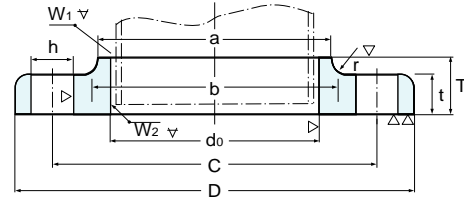
5Kg/cm²

KS B1503 - 1989 (JIS B2220)

5Kg/cm² SLIP - ON WELDING STAINLESS STEEL PIPE FLANGES



Nominal Size 10~400A



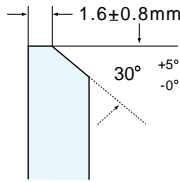
Nominal Size 450-1000A

Unit:mm

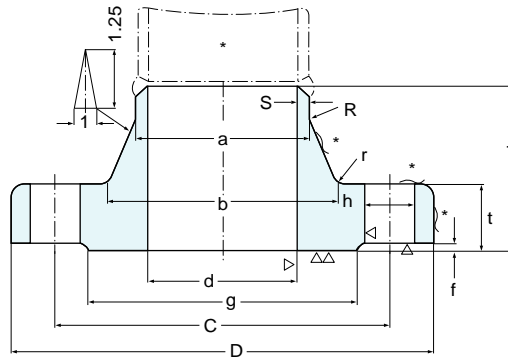
Nominal Pipe Size	Outside Dia. of Applicable Pipe	Inside Dia. of Flange do	Outside Dia. of Flange D	Sectional Dimensions of Flange					Dia. of Bolt			Nominal Bolt Size	Welding		Weight (Kg)
				t	T	Dia. of Hub		Radius r	Bolt Circle Diameter C	Number of Bolt Holes	Hole Diameter h		W ₁	W ₂	
						a	b								
(10)	17.3	17.8	75	9	-	-	-	-	55	4	12	M10	5	2.5	0.27
15	21.7	22.2	80	9	-	-	-	-	60	4	12	M10	5	3	0.30
(20)	27.2	27.7	85	10	-	-	-	-	65	4	12	M10	5	3	0.37
25	34.0	34.5	95	10	-	-	-	-	75	4	12	M10	5	3	0.45
(32)	42.7	43.2	115	12	-	-	-	-	90	4	15	M12	6	3	0.78
40	48.6	49.1	120	12	-	-	-	-	95	4	15	M12	6	3	0.83
50	60.5	61.1	130	14	-	-	-	-	105	4	15	M12	6	3	1.07
65	76.3	77.1	155	14	-	-	-	-	130	4	15	M12	6	4	1.49
80	89.1	90.0	180	14	-	-	-	-	145	4	19	M16	6	4	1.99
(90)	101.6	102.6	190	14	-	-	-	-	155	4	19	M16	6	4	2.09
100	114.3	115.4	200	16	-	-	-	-	165	8	19	M16	7	4	2.39
125	139.8	141.2	235	16	-	-	-	-	200	8	19	M16	7	4	3.23
150	165.2	166.6	265	18	-	-	-	-	230	8	19	M16	7	5	4.41
(175)	190.7	192.1	300	18	-	-	-	-	260	8	23	M20	7.5	5	5.51
200	216.3	218.0	320	20	-	-	-	-	280	8	23	M20	8.5	6	6.33
(225)	241.8	243.7	345	20	-	-	-	-	305	12	23	M20	9	6	6.64
250	267.4	269.5	385	22	-	-	-	-	345	12	23	M20	10	6	9.45
300	318.5	321.0	430	22	-	-	-	-	390	12	23	M20	10	6	10.30
350	355.6	358.1	480	24	-	-	-	-	435	12	25	M22	12	7	14.00
400	406.4	409.0	540	24	-	-	-	-	495	16	25	M22	12	7	16.90
450	457.2	460.0	605	24	40	495	500	5	555	16	25	M22	12	7	24.80
500	508.0	511.0	655	24	40	546	552	5	605	20	25	M22	12	7	26.90
550	558.8	562.0	720	26	42	597	603	5	665	20	27	M24	12	7	34.10
600	609.6	613.0	770	26	44	648	654	5	715	20	27	M24	12	7	37.50
650	660.4	664.0	825	26	48	702	708	5	770	24	27	M24	12	7	42.80
700	711.2	715.0	875	26	48	751	758	5	820	24	27	M24	12	7	45.40
750	762.0	766.0	945	28	52	802	810	5	880	24	33	M30	12	7	57.40
800	812.8	817.0	995	28	52	854	862	5	930	24	33	M30	13	8	60.80
850	863.6	868.0	1045	28	54	904	912	5	980	24	33	M30	13	8	63.50
900	914.4	919.0	1095	30	56	956	964	5	1030	24	33	M30	13	8	75.30
1000	1016.0	1021.0	1195	32	60	1058	1066	5	1130	28	33	M30	14	9	88.50

10Kg/cm²

WELDING NECK FLANGE



Reference: Bereling

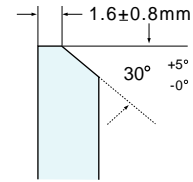
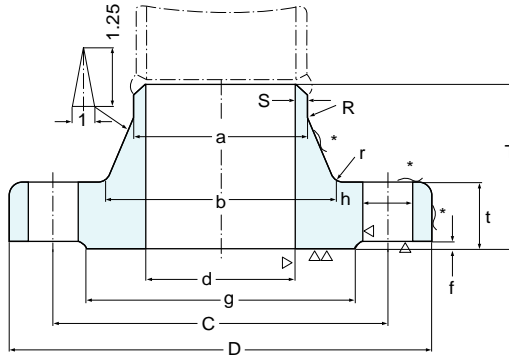


Unit:mm

Nominal Diam of Flange	Outside Diam of Steel Pipe	Inside Diam of Flange do	Outside Diam of Flange D	Sectional Dimensions of Flange							Dia. of Bolt			Nominal Bolt Size	Length of wecr Depat P *3	Approx. Weight (Kg)
				t	T *1	Diam of Hub		Radius r *2	Raised Face r	Diam of Raised Flange g	Bolt Circle Bolt Holes	Number of Bolt Holes	Hole Dia h			
						a	b									
10	17.3		90	12	28.9	17.3	25	4	1	46	65	4	15	M12	3.5	
15	21.7		95	12	30.6	21.7	33	4	1	51	70	4	15	M12	4.5	
20	27.2		100	14	33.9	27.2	38	4	1	56	75	4	15	M12	6.4	
25	34		125	14	36.3	34.0	47	4	1	67	90	4	19	M16	6.0	
32	42.7		135	16	40.3	42.7	57	5	2	76	100	4	19	M16	6.4	
40	48.6	To be specified by purchaser	140	16	41.2	48.6	64	5	2	81	105	4	19	M16	5.9	
50	60.5		155	16	42.9	60.5	77	5	2	96	120	4	19	M16	6.3	
65	76.3		175	18	53.0	76.3	97	5	2	116	140	4	19	M16	9.1	
80	89.1		185	18	53.0	89.1	109	6	2	126	150	8	19	M16	9.6	
(90)	101.6		195	18	50.6	101.6	120	6	2	136	160	8	19	M16	9.6	
100	114.3		210	18	54.3	114.3	135	6	2	151	175	8	19	M16	10.4	
125	139.8		250	20	56.2	139.8	160	6	2	182	210	8	23	M20	10.9	
150	165.2		280	22	65.3	165.2	190	6	2	212	240	8	23	M20	12.3	
(175)	190.7		305	22	66.1	190.7	215	6	2	237	265	12	23	M20	13.7	
200	216.3		330	22	66.1	216.3	240	6	2	262	290	12	23	M20	14.4	
(225)	241.8		350	22	62.3	241.8	262	6	2	282	310	12	23	M20	15.0	
250	267.4		400	24	70.7	267.4	292	6	2	324	355	12	25	M22	15.9	
300	318.5		445	24	75.9	318.5	346	6	3	368	400	16	25	M22	17.5	
350	355.6		490	26	83.0	355.6	386	8	3	413	445	16	25	M22	19.0	
400	406.4		560	28	94.4	406.4	442	8	3	475	510	16	27	M24	21.9	
450	457.2		620	30	107.9	457.2	502	10	3	530	565	20	27	M24	21.9	
500	508		675	30	110.2	508.0	554	10	3	585	620	20	27	M24	22.7	
550	558.8		745	32	119.9	558.8	610	10	3	640	680	20	33	M30	23.9	
600	609.6		795	32	123.6	609.6	662	10	3	690	730	24	33	M30	26.1	

20Kg/cm²

WELDING NECK STEEL PIPE FLANGE



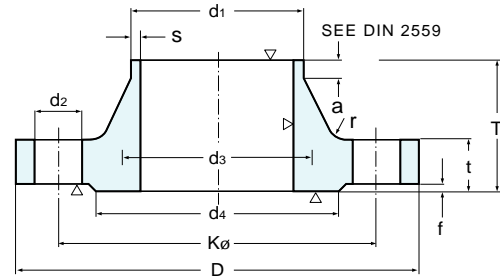
Reference:Beveling

Unit:mm

Nominal Diameter of Flange	Outside Diameter of Steel Pipe	Outside Diameter of Flange D	Sectional Dimensions of Flange										Bolt Hole			Nominal Bolt Size	Approx Weight (Kg)
			t	d	a	b	s	T	P	Radius	f	g	Bolt Diameter Circle C	Number of Bolt Holes	Diameter of Hole h		
10	17.3	90	14		17.3	32		35.9	3.5	4	1	46	65	4	15	M12	
15	21.7	95	14		21.7	36		36.4	4.5	4	1	51	70	4	15	M12	
20	27.2	100	16		27.2	42		40.9	6.4	4	1	56	75	4	15	M12	
25	34.0	125	16		34.0	50		42.0	6.0	4	1	67	90	4	19	M16	
32	42.7	135	18		42.7	60		46.0	6.4	5	2	76	100	4	19	M16	
40	48.6	140	18		48.6	66		45.7	5.9	5	2	81	105	4	19	M16	
50	60.5	155	18		60.5	80		48.7	6.3	5	2	96	120	8	19	M16	
65	76.3	175	20	To be specified by purchaser	76.3	104	To be specified by purchaser	63.7	9.1	5	2	116	140	8	19	M16	
80	89.1	200	22	To be specified by purchaser	89.1	117	To be specified by purchaser	66.5	9.6	6	2	132	160	8	23	M20	
90	101.6	210	24	To be specified by purchaser	101.6	130	To be specified by purchaser	68.9	9.4	6	2	145	170	8	23	M20	
100	114.3	225	24	To be specified by purchaser	114.3	142	To be specified by purchaser	69.0	10.4	6	2	160	185	8	23	M20	
125	139.8	270	26		139.8	172		77.2	10.9	6	2	195	225	8	25	M22	
150	165.2	305	28		165.2	202		86.3	12.3	6	2	230	260	12	25	M22	
200	216.3	350	30		216.3	252		89.0	14.4	6	2	275	305	12	25	M22	
250	267.4	430	34		267.4	312		105.7	15.9	6	2	345	380	12	27	M24	
300	318.5	480	36		318.5	364		110.4	17.5	8	3	395	430	16	27	M24	
350	355.6	540	40		355.6	408		124.5	19.0	8	3	440	480	16	33	M30x3	
400	406.4	605	46		406.4	456		129.9	21.9	10	3	495	540	16	33	M30x3	
450	457.2	675	48		457.2	514		140.9	21.9	10	3	560	605	20	33	M30x3	
500	508.0	730	50		508.0	568		147.7	22.7	10	3	615	660	20	33	M30x3	
550	558.8	795	52		558.8	622		154.9	23.9	10	3	670	720	20	39	M36x3	
600	609.6	845	54		609.6	676		163.1	26.1	10	3	720	770	24	39	M36x3	

6-Bar

- DIN 2573 SLIP-ON FLANGE
- DIN 2527 BLIND FLANGES
- DIN 2631 WELDING-NECK FLANGES



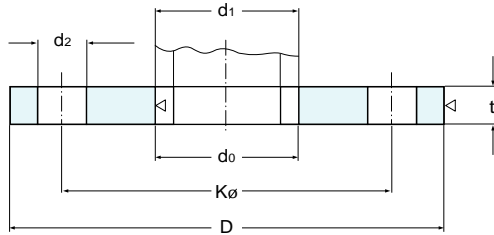
Welding Neck

Unit:mm

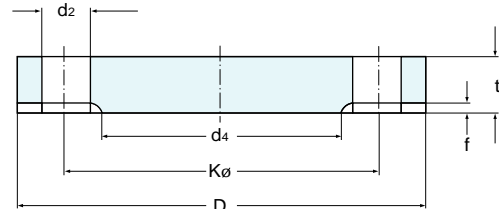
Pipe Mating Dim		Flange						Hub				Raised Face		Bolts			Approx. Weight(Kg)		
Nominal Width	d1	D	t			K	T	d3	s	r	a	d4	f	Q'ty	Thread	d2	DIN 2573	DIN 2631	
			Welding neck	Slip on	Blind														
10	14 17.2*)	75	12	12	12	50	28	22 26	1.8	4	6	35	2	4	M10	-	11.5	0.363	0.335
15	20 21.3*)	80	12	12	12	55	30	28 30	2.0	4	6	40	2	4	M10	-	11.5	0.410	0.392
20	25 26.9*)	90	14	14	14	65	32	35 38	2.3	4	6	50	2	4	M10	-	11.5	0.600	0.592
25	30 33.7*)	100	14	14	14	75	35	40 42	2.6	4	6	60	2	4	M10	-	11.5	0.740	0.747
32	38 42.4*)	120	14	16	14	90	35	50 55	2.6	6	6	70	2	4	M12	(1/2")	14	1.19	1.05
40	44.5 48.3*)	130	14	16	14	100	38	58 62	2.6	6	7	80	3	4	M12	(1/2")	14	1.39	1.18
50	57 60.3*)	140	14	16	14	110	38	70 74	2.9	6	8	90	3	4	M12	(1/2")	14	1.53	1.34
65	76.1	160	14	16	14	130	38	88	2.9	6	9	110	3	4	M12	(1/2")	14	1.89	1.67
80	88.9*)	190	16	18	16	150	42	102	3.2	8	10	128	3	4	M16	(5/8")	18	2.98	2.71
100	108 114.3*)	210	16	18	16	170	45	122 130	3.6	8	10	148	3	4	M16	(5/8")	18	3.46	3.24
125	133 139.7*)	240	18	20	18	200	48	148 155	4.0	8	10	178	3	8	M16	(5/8")	18	4.60	4.49
150	159 168.3*)	265	18	20	18	225	48	172 184	4.5	10	12	202	3	8	M16	(5/8")	18	5.22	5.15
200	216 219.1*)	320	20	22	20	280	55	230 236	5.9	10	15	258	3	8	M16	(5/8")	18	7.15	7.78
250	267 273*)	375	22	24	22	335	60	282 290	6.2	12	15	312	3	12	M16	(5/8")	18	9.61	10.8
300	318 323.9*)	440	22	24	22	395	62	335 342	7.1	12	15	365	4	12	M20	(3/4")	23	12.6	14.0
350	355.6*) 368	490	22	26	22	445	62	385	7.1	12	15	415	4	12	M20	(3/4")	23	15.6	16.7
400	406.4*) 419	540	22	28	22	495	65	438	7.1	12	15	465	4	16	M20	(3/4")	23	18.4	19.0
500	508*) 521	645	24	30	24	600	68	538	7.1	12	15	570	4	20	M20	(3/4")	23	24.6	28.6
600	609.6*) 622	755	24			705	70	640	7.1	12	16	670	5	20	M24	(7/8")	27		
700	711.2*) 720	860	24			810	70	740	7.1	12	16	775	5	24	M24	(7/8")	27		
800	812.8*) 820	975	24			920	70	842	7.1	12	16	880	5	24	M27	(1")	30		
900	914.4*) 920	1075	26			1020	70	942	7.1	12	16	980	5	24	M27	(1")	30		
1000	1016*) 1020	1175	26			1120	70	1045	7.1	16	16	1080	5	28	M27	(1")	30		

10-Bar

DIN 2576 SLIP-ON FLANGES
 DIN 2527 BLIND FLANGES
 DIN 2632 WELDING-NECK FLANGES



Slip-On



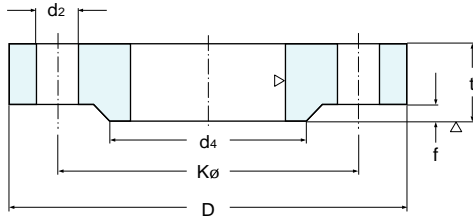
Blind

Unit:mm

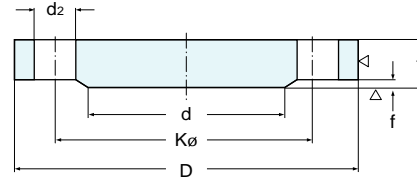
Pipe Mating Dim		Flange						Hub				Raised Face		Bolts		Approx. Weight(Kg)			
Nominal Width	d1	D	t			K	T	d3	s	r	a	d4	f	Q'ty	Thread	d2	DIN 2574	DIN 2632	
			Welding neck	Slip on	Blind														
10	14 17.2*)	90	14	14	14	60	35	25 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.163	0.580
15	20 21.3*)	95	14	14	14	65	35	30 32	2.0	4	6	45	2	4	M12	(1/2")	14	0.675	0.645
20	25 26.9*)	105	16	16	16	75	38	38 40	2.3	4	6	58	2	4	M12	(1/2")	14	0.947	0.952
25	30 33.7*)	115	16	16	16	85	38	42 45	2.6	4	6	68	2	4	M12	(1/2")	14	1.14	1.14
32	38 42.4*)	140	16	16	16	100	40	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	1.66	1.69
40	44.5 48.3*)	150	16	16	16	110	42	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	1.89	1.86
50	57 60.3*)	165	18	18	18	125	45	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	2.51	2.53
65	76.1	185	18	18	18	145	45	90	2.9	6	10	122	3	4	M16	(5/8")	18	3.00	3.06
80	88.9*)	200	20	20	20	160	50	105	3.2	8	10	138	3	4	M16	(5/8")	18	3.79	3.70
100	108 114.3*)	220	20	20	20	180	52	125 131	3.6	8	12	158	3	8	M16	(5/8")	18	4.20	4.62
125	133 139.7*)	250	22	22	22	210	55	150 156	4.0	8	12	188	3	8	M16	(5/8")	18	5.71	6.30
150	159 168.3*)	285	22	22	22	240	55	175 184	4.5	10	12	212	3	8	M20	(3/4")	23	6.72	7.75
200	216 219.1*)	340	24	24	24	295	62	232 235	5.9	10	16	268	3	8	M20	(3/4")	23	9.50	11.3
250	267 273*)	395	26	26	26	350	68	285 292	6.3	12	16	320	3	12	M20	(3/4")	23	12.5	14.7
300	318 323.9*)	445	26	26	28	400	68	335 344	7.1	12	16	370	4	12	M20	(3/4")	23	14.4	17.6
350	355.6*) 368	505	26	28	30	460	68	385	7.1	12	16	430	4	16	M20	(3/4")	23	20.6	21.4
400	406.4*) 419	565	26	32	32	515	72	440	7.1	12	16	482	4	16	M24	(7/8")	27	27.9	26.1
500	508*) 521	670	28	38	34	620	75	542	7.1	12	16	585	4	20	M24	(7/8")	27	41.1	34.7
600	609.6*) 622	780	28			725	80	642	7.1	12	18	685	5	20	M27	(1")	30		
700	711.2*) 720	895	30			840	80	745	8.0	12	18	800	5	24	M27	(1")	30		
800	812.8*) 820	1015	32			950	90	850	8.0	12	18	905	5	24	M30	(1 1/8")	33		
900	914.4*) 920	1115	34			1050	95	950	10.0	12	20	1005	5	28	M30	(1 1/8")	33		
1000	1016*) 1020	1230	34			1160	95	1052	10.0	16	20	1110	5	28	M33	(1 1/4")	36		

25-Bar

DIN 2544 SLIP-ON FLANGES SLIP
 DIN 2527 BLIND FLANGES
 DIN 2634 WELDING-NECK FLANGES



Slip-On

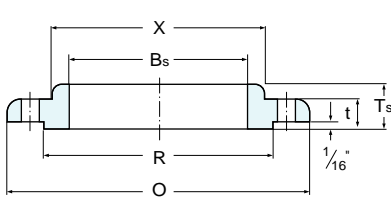


Blind

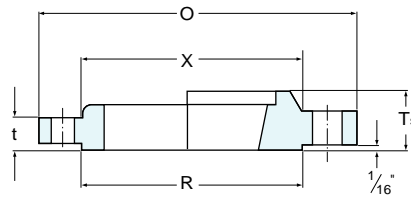
Unit:mm

Pipe Mating Dim		Flange						Hub				Raised Face		Bolts			Approx. Weight(Kg)		
Nominal Width	d1	D	t			K	T	d3	s	r	a	d4	f	Q'ty	Thread	d2	DIN 2544	DIN 2634	
			Welding neck	Slip-on (No Hub)	Blind														
10	14 17.2*)	90	16	-	16	60	35	25 28	1.8	4	6	40	2	4	M12	(1/2")	14	0.72	0.661
15	20 21.3*)	95	16	16	16	65	38	30 32	2.0	4	6	45	2	4	M12	(1/2")	14	0.81	0.746
20	25 26.9*)	105	18	18	18	75	40	38 40	2.3	4	6	58	2	4	M12	(1/2")	14	0.24	1.06
25	30 33.7*)	115	18	18	18	85	40	42 46	2.6	4	6	68	2	4	M12	(1/2")	14	1.38	1.29
32	38 42.4	140	18	18	18	100	42	52 56	2.6	6	6	78	2	4	M16	(5/8")	18	2.03	1.88
40	44.5 48.3*)	150	18	18	18	110	45	60 64	2.6	6	7	88	3	4	M16	(5/8")	18	2.35	2.34
50	57 60.3*)	165	20	20	20	125	48	72 75	2.9	6	8	102	3	4	M16	(5/8")	18	3.20	2.82
65	76.1*)	185	22	22	22	145	52	90	2.9	6	10	122	3	8	M16	(5/8")	18	4.29	3.74
80	88.9*)	200	24	24	24	160	58	105	3.2	8	12	138	3	8	M16	(5/8")	18	5.88	4.75
100	108 114.3*)	235	24	24	24	190	65	128 134	3.6	8	12	162	3	8	M20	(3/4")	23	7.54	6.52
125	133 139.7*)	270	26	26	26	220	68	155 162	4.0	8	12	188	3	8	M24	(7/8")	27	10.8	9.07
150	159 168.3*)	300	28	28	28	250	75	182 192	4.5	10	12	218	3	8	M24	(7/8")	27	14.5	11.8
200	216 219.1*)	360	30	30	30	310	80	240 244	6.3	10	16	278	3	12	M24	(7/8")	27	22.3	17.0
250	267 273	425	32	32	32	370	88	292 298	7.1	12	18	335	3	12	M27	(1")	30	33.5	24.4
300	318 323.9	485	34	34	34	430	92	345 352	8.0	12	18	395	4	16	M27	(1")	30	46.3	31.2
350	355.6*) 368	555	38	38	38	490	100	398	8.0	12	20	450	4	16	M30	(11/8")	33	68.0	45.0
400	406.4*) 419	620	40	40	40	550	110	452	8.0	12	20	505	4	16	M33	(11/4")	36	89.7	58.7
500	508*) 521	730	44	44	44	660	125	558	10.0	12	20	615	4	20	M33	(11/4")	36	138.0	89.6
600	609.6*) 622	845	46			770	125	660	11.0	12	20	720	5	20	M36	(13/8")	39		104
700	711.2*) 720	960	46			875	125	760	12.5	12	20	820	5	24	M39	(11/2")	42		136
800	812.8*) 820	1085	50			990	135	865	14.2	12	22	930	5	24	M45	(13/4")	48		186
900	914.4*) 920	1185	54			1090	145	968	16.0	12	24	1030	5	28	M45	(13/4")	48		236
1000	1016*) 1020	1320	58			1210	155	1070	17.5	16	24	1140	5	28	M52	(2")	56		307

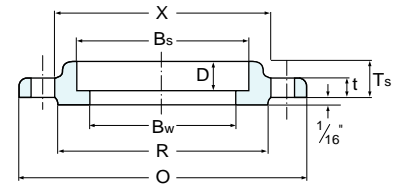
150Lbs, 300Lbs ANSI B16.5



Slip-On



Threaded



Socket Welding

Class 150

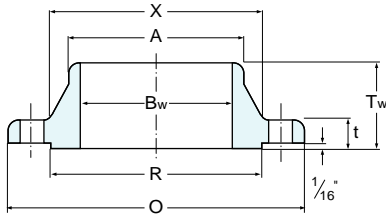
Unit: inches

Nominal Pipe Size	Outside Dia. of Flange	Thick of Flange	Dia. of Raised Face	Dia. of Hub at Base	LENGTH THRU HUB			Minimum Thread Length	MIN. DIA. OF BORE			Dia. of Hub at Bevel	Radius of Fillet	Depth of Socket
					Welding Neck	Slip-on, Threaded, Socket	Lap Joint		Welding Neck, Socket	Slip-on, Socket	Lap Joint			
					O	T	R		X	Tw	Ts			
1/2	3.50	0.44	1.38	1.19	1.88	0.62	0.62	0.62	0.62	0.88	0.90	0.84	0.12	0.38
3/4	3.88	0.50	1.69	1.50	2.06	0.62	0.62	0.62	0.82	1.09	1.11	1.05	0.12	0.44
1	4.25	0.56	2.00	1.94	2.19	0.69	0.69	0.69	1.05	1.36	1.38	1.32	0.12	0.50
1-1/4	4.62	0.62	2.50	2.31	2.25	0.81	0.81	0.81	1.38	1.70	1.72	1.66	0.19	0.56
1-1/2	5.00	0.69	2.88	2.56	2.44	0.88	0.88	0.88	1.61	1.95	1.97	1.90	0.25	0.62
2	6.00	0.75	3.62	3.06	2.50	1.00	1.00	1.00	2.07	2.44	2.46	2.38	0.31	0.69
2-1/2	7.00	0.88	4.12	3.56	2.75	1.12	1.12	1.12	2.47	2.94	2.97	2.88	0.31	0.75
3	7.50	0.94	5.00	4.25	2.75	1.19	1.19	1.19	3.07	3.57	3.60	3.50	0.38	0.81
3-1/2	8.50	0.94	5.50	4.81	2.81	1.25	1.25	1.25	3.55	4.07	4.10	4.00	0.38	0.88
4	9.00	0.94	6.19	5.31	3.00	1.31	1.31	1.31	4.03	4.57	4.60	4.50	0.44	0.94
5	10.00	0.94	7.31	6.44	3.50	1.44	1.44	1.44	5.05	5.66	5.69	5.56	0.44	0.94
6	11.00	1.00	8.50	7.56	3.50	1.56	1.56	1.56	6.07	6.72	6.75	6.63	0.50	1.06
8	13.50	1.12	10.62	9.69	4.00	1.75	1.75	1.75	7.98	8.72	8.75	8.63	0.50	1.25
10	16.00	1.19	12.75	12.00	4.00	1.94	1.94	1.94	10.02	10.88	10.92	10.75	0.50	1.31
12	19.00	1.25	15.00	14.38	4.50	2.19	2.19	2.19	12.00	12.88	12.92	12.75	0.50	1.50
14	21.00	1.38	16.25	15.75	5.00	2.25	3.12	2.25	To be specified by purchaser	14.14	14.18	14.00	0.50	1.62
16	23.50	1.44	18.50	18.00	5.00	2.50	3.44	2.50		16.16	16.19	16.00	0.50	1.75
18	25.00	1.56	21.00	19.88	5.50	2.69	3.81	2.69		18.18	18.20	18.00	0.50	1.94
20	27.50	1.69	23.00	22.00	5.69	2.88	4.06	2.88	To be specified by purchaser	20.20	20.25	20.00	0.50	2.13
24	32.00	1.88	27.25	26.12	6.00	3.25	4.38	3.25		24.25	24.25	24.00	0.50	2.50

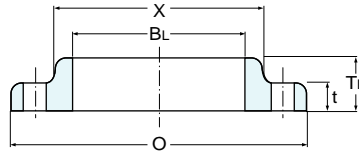
Class 300

Nominal Pipe Size	Outside Dia. of Flange	Thick of Flange	Dia. of Raised Face	Dia. of Hub at Base	LENGTH THRU HUB			Minimum Thread Length	MIN. DIA. OF BORE			Dia. of Hub at Bevel	Radius of Fillet	Depth of Socket
					Welding Neck	Slip-on, Threaded, Socket	Lap Joint		Welding Neck, Socket	Slip-on, Socket	Lap Joint			
					O	T	R		X	Tw	Ts			
1/2	3.75	0.56	1.38	1.50	0.93	2.06	0.88	0.88	0.62	0.62	0.88	0.90	0.84	0.12
3/4	4.62	0.62	1.69	1.88	1.14	2.25	1.00	1.00	0.62	0.82	1.09	1.11	1.50	0.12
1	4.88	0.69	2.00	2.12	1.41	2.44	1.06	1.06	0.69	1.05	1.36	1.38	1.32	0.12
1-1/4	5.25	0.75	2.60	2.50	1.75	2.56	1.06	1.06	0.81	1.38	1.70	1.72	1.66	0.19
1-1/2	6.12	0.81	2.88	2.75	1.99	2.69	1.19	1.19	0.88	1.61	1.95	1.97	1.90	0.25
2	6.50	0.88	3.62	3.31	2.50	2.75	1.31	1.31	1.12	2.07	2.44	2.46	2.38	0.31
2-1/2	7.50	1.00	4.12	3.94	3.00	3.00	1.50	1.50	1.25	2.47	2.94	2.97	2.88	0.31
3	8.25	1.12	5.00	4.62	3.63	3.12	1.69	1.69	1.25	3.07	3.57	3.60	3.50	0.38
3-1/2	9.00	1.19	5.50	5.25	4.13	3.19	1.75	1.75	1.44	3.55	4.07	4.10	4.00	0.38
4	10.00	1.25	6.19	5.75	4.63	3.38	1.88	1.88	1.44	4.03	4.57	4.60	4.50	0.44
5	11.00	1.38	7.31	7.00	5.69	3.88	2.00	2.00	1.69	5.05	5.66	5.69	5.56	0.44
6	12.50	1.44	8.50	8.12	6.75	3.88	2.06	2.06	1.81	6.07	6.72	6.75	6.63	0.50
8	15.00	1.62	10.62	10.25	8.75	4.38	2.44	2.44	2.00	7.98	8.72	8.75	8.63	0.50
10	17.50	1.88	12.75	12.62	10.88	5.62	2.62	3.75	2.19	10.02	10.88	10.92	10.75	0.50
12	20.50	2.00	15.00	14.75	12.94	5.12	2.88	4.00	2.38	12.00	12.88	12.92	12.75	0.50
14	23.00	2.12	16.25	16.75	14.19	5.62	3.00	4.38	2.50	To be specified by purchaser	14.14	14.18	14.00	0.50
16	25.50	2.25	18.50	19.00	16.19	5.75	3.25	4.75	2.69		16.16	16.19	16.00	0.50
18	28.00	2.38	21.00	21.00	18.19	6.25	3.50	5.12	2.75		18.18	18.20	18.00	0.50
20	30.50	2.50	23.00	23.12	20.19	6.38	3.75	5.50	2.88	To be specified by purchaser	20.20	20.25	20.00	0.50
24	36.00	2.75	27.25	27.62	24.19	66.2	4.19	6.00	3.25		24.25	24.25	24.00	0.50

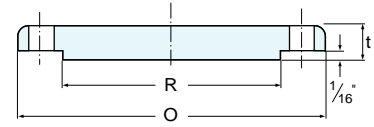
150Lbs, 300Lbs ANSI B16.5



Welding Neck



Lap Joint



Blind

Class 150

Unit: inches

DRILLING				LENGTH OF BOLTS			APPROXIMATE WEIGHT IN POUNDS *(kg)					Nominal Pipe Size
Dia. of Bolt Circle	Number of Bolts	Dia. of Bolts	Dia. of Bolt Holes	STUD BOLTS		MACHINE BOLTS 0.06" RF	Welding Neck	Slip-on, Threaded, Socket	Lap Joint	Blind	Socket Type and Threaded	
				0.06" Raised Face	Ring Joint							
2.38	4	1/2	0.62	2.25	-	2.00	2(0.91)	2(0.91)	2(0.91)	2(0.91)	2(0.91)	1/2
2.75	4	1/2	0.62	2.50	-	2.20	2(0.91)	2(0.91)	2(0.91)	2(0.91)	2(0.91)	3/4
3.12	4	1/2	0.62	2.50	3.00	2.25	2.5(1.14)	2.3(1.04)	2.3(1.04)	2.5(1.14)	2.3(1.04)	1
3.50	4	1/2	0.62	2.75	3.25	2.25	4(1.82)	2.5(1.14)	2.5(1.14)	3(1.36)	2.5(1.14)	1-1/4
3.88	4	1/2	0.62	2.75	3.25	2.50	5(2.27)	3(1.36)	3.3(1.50)	4(1.82)	3(1.36)	1-1/2
4.75	4	5/8	0.75	3.25	3.75	2.75	6.5(2.95)	5(2.27)	5.3(2.40)	6(2.72)	5(2.27)	2
5.50	4	5/8	0.75	3.50	4.00	3.00	10(4.54)	8(3.63)	9.3(4.22)	10.5(4.75)	8.3(3.76)	2-1/2
6.00	4	5/8	0.75	3.50	4.00	3.00	12.5(5.45)	9(4.09)	9.5(4.31)	12.5(5.67)	9.3(4.22)	3
7.00	8	5/8	0.75	3.50	4.00	3.00	15(6.81)	12(5.45)	12(5.45)	15(6.81)	12.5(5.67)	3-1/2
7.50	8	5/8	0.75	3.50	4.00	3.00	16(7.26)	13(5.90)	13(5.90)	17(7.72)	13.5(6.12)	4
8.50	8	3/4	0.88	3.75	4.25	3.25	21(9.53)	14(6.35)	14(6.36)	21(9.54)	14.5(6.58)	5
9.50	8	3/4	0.88	4.00	4.50	3.25	25(11.34)	18(8.17)	18(8.12)	28(12.71)	19(8.62)	6
11.75	8	3/4	0.88	4.25	4.75	3.50	40(18.16)	27(12.26)	27(12.25)	47(21.34)	28(12.71)	8
14.25	12	7/8	1.00	4.50	5.00	4.00	56(25.42)	37(16.78)	38(17.24)	69(31.33)	40(18.14)	10
17.00	12	7/8	1.00	4.75	5.25	4.00	86(39.04)	59(26.76)	61(27.69)	123(55.79)	62(28.12)	12
18.75	12	1	1.12	5.25	5.75	4.50	111(50.35)	80(36.29)	94(42.64)	139(63.11)	84(38.10)	14
21.25	16	1	1.12	5.25	5.75	4.50	141(63.96)	101(45.81)	120(54.43)	187(84.90)	106(48.08)	16
22.75	16	1-1/8	1.25	5.75	6.25	5.00	165(74.90)	112(50.80)	146(66.23)	217(98.52)	120(54.43)	18
25.00	20	1-1/8	1.25	6.25	6.75	5.50	197(89.44)	148(67.19)	162(73.48)	283(128.48)	155(70.31)	20
29.50	20	1-1/4	1.38	6.75	7.25	6.00	270(122.47)	204(92.62)	223(101.15)	423(191.87)	210(95.34)	24

Class 300

Depth of Socket D	DRILLING				LENGTH OF BOLTS			APPROXIMATE WEIGHT IN POUNDS *(kg)					Nominal Pipe Size
	Dia. of Bolt Circle	Number of Bolts	Dia. of Bolts	Dia. of Bolt Holes	STUD BOLTS		MACHINE BOLTS 0.06" RF	Welding Neck	Slip-on and Threaded	Lap Joint	Blind	Socket Type	
					0.06" Raised Face	Ring Joint							
0.38	2.62	4	1/2	0.62	2.50	3.00	2.25	4(1.82)	2(0.91)	2(0.91)	2(0.91)	2(0.91)	1/2
0.44	3.25	4	5/8	0.75	3.00	3.50	2.50	4(1.82)	3(1.36)	3(1.36)	3.3(1.50)	3(1.50)	3/4
0.50	3.50	4	5/8	0.75	3.00	3.50	2.50	5(2.27)	3.5(1.59)	3.8(1.72)	4(1.82)	3.5(1.59)	1
0.56	3.88	4	5/8	0.75	3.25	3.75	2.75	6(2.27)	4.5(2.04)	4.3(1.95)	6(2.72)	4(1.82)	1-1/4
0.62	4.50	4	3/4	0.88	3.50	4.00	3.00	9(4.09)	6.5(2.95)	6.3(2.86)	7(3.18)	6.3(2.86)	1-1/2
0.69	5.00	8	5/8	0.75	3.50	4.00	3.00	8.5(3.86)	7(3.18)	7.5(3.40)	8(3.63)	7.3(3.31)	2
0.75	5.88	8	3/4	0.88	4.00	4.50	3.25	12(5.45)	10(4.54)	11(4.99)	12(5.45)	10.5(4.76)	2-1/2
0.81	6.62	8	3/4	0.88	4.25	4.75	3.50	18(8.16)	14(6.36)	14(6.36)	16(7.26)	15.5(7.03)	3
	7.25	8	3/4	0.88	4.25	5.00	3.75	20(9.08)	17(7.72)	17(7.72)	21(9.53)	17.5(7.94)	3-1/2
	7.88	8	3/4	0.88	4.50	5.00	3.75	26(11.80)	24(10.90)	24(10.90)	27(12.26)	23(10.43)	4
	9.25	8	3/4	0.88	4.75	5.25	4.25	36(16.33)	29(13.17)	28(12.71)	36(16.33)		5
	10.62	12	3/4	0.88	4.75	5.50	4.25	45(20.41)	38(17.25)	39(17.69)	50(22.68)		6
	13.00	12	7/8	1.00	5.50	6.00	4.75	70(31.75)	56(25.40)	58(26.30)	81(36.74)		8
	15.25	16	1	1.12	6.25	6.75	5.50	100(45.40)	78(35.38)	87(39.46)	122(55.34)		10
	17.75	16	1-1/8	1.25	6.75	7.25	5.75	142(64.47)	117(53.07)	139(63.11)	183(83.08)		12
	20.25	20	1-1/8	1.25	7.00	7.50	6.25	205(93.52)	166(75.30)	189(85.73)	242(109.77)		14
	22.50	20	1-1/4	1.38	7.50	8.00	6.50	250(113.40)	210(95.34)	240(108.86)	315(163.01)		16
	24.75	24	1-1/4	1.38	7.75	8.25	6.75	305(138.47)	258(117.03)	305(138.47)	414(187.96)		18
	27.00	24	1-1/4	1.38	8.00	8.75	7.25	380(172.37)	320(145.15)	375(170.25)	515(233.81)		20
	32.00	24	1-1/2	1.62	9.00	10.00	8.00	540(244.94)	490(222.26)	530(240.62)	800(363.20)		24

DIMENSIONS OF WELDED AND SEAMLESS PIPE STAINLESS STEEL

Nominal Pipe Size		Outside Diameter		Nominal Wall							
Inch	mm	KS(JIS)	ANSI	SPP(JIS)	Sch5S	Sch10S	Sch10	Sch20S	Sch20	Sch30	Sch40S
1/8	6	10.50	10.29	-	-	1.24	-	1.5	-	-	1.73
1/4	8	13.80	13.72	-	-	1.64	-	2.0	-	-	2.24
3/8	10	17.30	17.14	-	-	1.65	-	2.0	-	-	2.31
1/2	15	21.70	21.34	2.8	1.65	2.11	-	2.5	-	-	2.77
3/4	20	27.20	26.67	2.8	1.65	2.11	-	2.5	-	-	2.87
1	25	34.00	33.40	3.2	1.65	2.77	-	3.0	-	-	3.38
1-1/4	32	42.70	42.16	3.5	1.64	2.77	-	3.0	-	-	3.56
1-1/2	40	48.60	48.26	3.5	1.65	2.77	-	3.0	-	-	3.63
2	50	60.50	60.32	3.8	1.65	2.77	-	3.5	3.20	-	3.91
2-1/2	65	76.30	73.02	4.2	2.11	3.05	-	3.5	4.50	-	4.28
3	80	89.10	88.90	4.2	2.11	3.05	-	4.0	4.50	-	5.49
3-1/2	90	101.60	101.60	4.2	2.11	3.05	-	4.0	4.50	-	5.74
4	100	114.30	114.30	4.5	2.11	3.05	-	4.0	4.90	-	6.02
5	125	139.80	141.30	4.5	2.77	3.40	-	5.0	5.10	-	6.55
6	150	165.20	168.30	5.0	2.77	3.40	-	5.0	5.50	-	7.11
8	200	216.30	219.08	5.8	2.77	3.76	-	6.5	6.35	7.04	8.18
10	250	267.40	273.05	6.6	3.40	4.19	-	6.5	6.35	7.80	9.27
12	300	318.50	323.85	6.9	3.96	4.57	-	6.5	6.35	8.38	9.52
14	350	355.60	355.60	7.9	3.96	4.78	6.35	-	7.92	9.52	*9.52
16	400	406.40	406.40	7.9	4.19	4.78	-	-	7.92	9.52	*9.52
18	450	457.20	457.20	7.9	4.19	4.78	6.35	-	7.92	11.12	*9.52
20	500	508.00	508.00	7.9	4.78	5.54	6.35	-	9.52	12.70	*9.52
22	550	558.8	558.8	-	4.78	5.54	6.35	-	9.52	12.70	*9.52
24	600	609.6	609.6	-	6.54	6.35	6.35	-	9.52	14.27	*9.52
26	650	660.4	660.4	-	-	*7.92	7.92	-	12.70	-	*9.52
28	700	711.2	711.2	-	-	*7.92	7.92	-	12.70	15.88	*9.52
30	750	762.0	762.0	-	6.35	*7.92	7.92	-	12.70	15.88	*9.52
32	800	812.8	812.8	-	-	*7.92	7.92	-	12.70	15.88	*9.52
34	850	863.6	963.6	-	-	*7.92	7.92	-	12.70	15.88	*9.52
36	900	914.4	914.4	-	-	*7.92	7.92	-	12.70	15.88	*9.52
38	950	965.2	965.2	-	-	*7.92	-	-	-	-	*9.52
40	1000	1016.0	1016.0	-	-	*7.92	-	-	-	-	*9.52
42	1100	1117.6	1117.6	-	-	*7.92	-	-	-	-	*9.52
44	1100	1117.6	1117.6	-	-	*7.92	-	-	-	-	*9.52
46	1150	1168.4	1168.4	-	-	*7.92	-	-	-	-	*9.52
48	1200	1219.2	1219.2	-	-	*7.92	-	-	-	-	*9.52

MATERIAL SPECIFICATIONS

(ANSI B16.5 ASTM STANDARD)

ASTM	Grade	Classification	CHEMISTRY								MECHANICAL PROPERTIES					
			C %	Mn %	P Max. %	S Max. %	Si %	Ni %	Cr %	Mo %	T.S Min-psi (kg/mm ²)	Y.S Min-psi (kg/mm ²)	EL. Min. %	Red. Min. %	HB	
A-105		Carbon Steel	Max 0.35	0.60~1.05	0.040	0.050	Max 0.35					70,000 (49.2)	36,000 (25.3)	22	30	Max 187
A-181	60	Carbon Steel	Max 0.35	Max 0.90	0.050	0.050	Max 0.35					60,000 (42.2)	30,000 (21.1)	22	35	
A-181	70	Carbon Steel	Max 0.35	Max 0.90	0.050	0.050	Max 0.35					70,000 (49.2)	36,000 (25.3)	18	24	
A-182	F1	1/2Mo	Max 0.28	0.6~0.90	0.045	0.045	0.15~0.35				0.44~0.65	70,000 (49.2)	40,000 (28.1)	25	35	143~192
A-182	F5	5cr-1/2Mo	Max 0.15	0.30~0.60	0.030	0.030	Max 0.50	Max 0.50	4.0~6.0	0.44~0.65	70,000 (42.2)	40,000 (28.1)	20	35	143~217	
A-182	F5a	5cr-1/2Mo	Max 0.25	Max 0.6	0.040	0.030	Max 0.50	Max 0.50	4.0~6.0	0.44~0.65	90,000 (63.3)	65,000 (45.7)	22	50	187~248	
A-182	F6	13-cr	Max 0.12	Max 1.00	0.040	0.030	Max 1.00	Max 0.50	11.5~13.5		0.44~0.65	85,000 (59.8)	55,000 (38.7)	25	50	167~229
A-182	F6	7cr-1/2Mo	Max 0.15	0.30~0.60	0.030	0.030	0.50~1.00		6.0~8.0	0.44~0.65	70,000 (49.2)	40,000 (28.1)	20	35	197~217	
A-182	F9	9cr-1Mo	Max 0.15	0.30~0.60	0.030	0.030	0.5~1.00		8.0~10.0	0.90~1.10	85,000 (59.8)	55,000 (38.7)	20	40	179~217	
A-182	F11	1-1/4cr-1/2Mo	0.10~0.20	0.30~0.60	0.040	0.040	0.5~1.00		1.00~1.50	0.44~0.65	70,000 (49.2)	40,000 (28.1)	20	30	143~207	
A-182	F12	1cr-1/2Mo	0.10~0.20	0.30~0.80	0.040	0.040	0.1~0.6		0.8~1.25	0.44~0.65	70,000 (49.2)	40,000 (28.1)	20	30	143~207	
A-182	F22	2-1/4-1Mo	Max 0.15	0.30~0.60	0.040	0.040	Max 0.50		2.00~2.50	0.87~1.13	75,000 (52.7)	45,000 (31.6)	20	30	156~207	
A-182	F304	18cr-8Ni	Max 0.08	Max 2.00	0.040	0.030	Max 1.00	8.00~11.00	18.00~20.00			75,000 (52.7)	30,000 (21.1)	45	50	
A-182	F304L	Low 18cr-8Ni	Max 0.035	Max 2.00	0.040	0.030	Max 1.00	8.00~13.00	18.00~20.00			70,000 (49.2)	25,000 (17.6)	30	50	
A-182	F316	18cr-8Ni Mo	Max 0.08	Max 2.00	0.040	0.030	Max 1.00	10.00~14.00	16.00~18.00	2.00~3.00		75,000 (52.7)	30,000 (21.7)	45	50	
A-182	F316L	18cr-8Ni Mo-Low	Max 0.035	Max 2.00	0.040	0.030	Max 1.00	10.00~15.00	16.00~18.00	2.00~3.00		65,000 (45.7)	25,000 (17.6)	30	50	
A-182	F321	18cr-8Ni Ti	Max 0.08	Max 2.00	0.030	0.030	Max 1.00	9.00~12.00	Min 17.00			75,000 (52.7)	30,000 (21.1)	45	50	
A-182	F347	18cr-8Ni Cb	Max 0.08	Max 2.00	0.030	0.030	Max 1.00	9.00~13.00	17.00~20.00			75,000 (52.7)	30,000 (21.1)	45	50	
A-350	LF1	Carbon Steel	Max 0.30	0.75~1.05	0.035	0.040	0.15~0.30					60,000~85,000 (42.2)	30,000 (21.1)	25	38	
A-350	LF2	Carbon Steel	Max 0.30	Max 1.35	0.035	0.040	0.15~0.30					70,000~95,000 (49.2)	36,000 (25.3)	22	30	
A-350	LF3	3-1/2Ni	Max 0.20	Max 0.90	0.035	0.040	0.20~0.35	3.25~3.75				70,000~95,000 (49.2)	37,500 (26.4)	22	35	
*5 MSS SP-44 F42		Max 0.35	$C.E.\% = C\% + \frac{Mn\%}{6} + \frac{Cr\% + Mo\% + V\%}{5} + \frac{Ni\% + Cu\%}{15} \leq 0.50\%$													
*5 MSS SP-44 F52	Max 0.35															
*5 MSS SP-44 F60	Max 0.35															
*5 MSS SP-44 F65	Max 0.35															
*5 MSS SP-44 F70	Max 0.35															
			-	-	-	-	-	-	-	-	C.E max 50	min 70 ksi	min 80 ksi	18	-	-