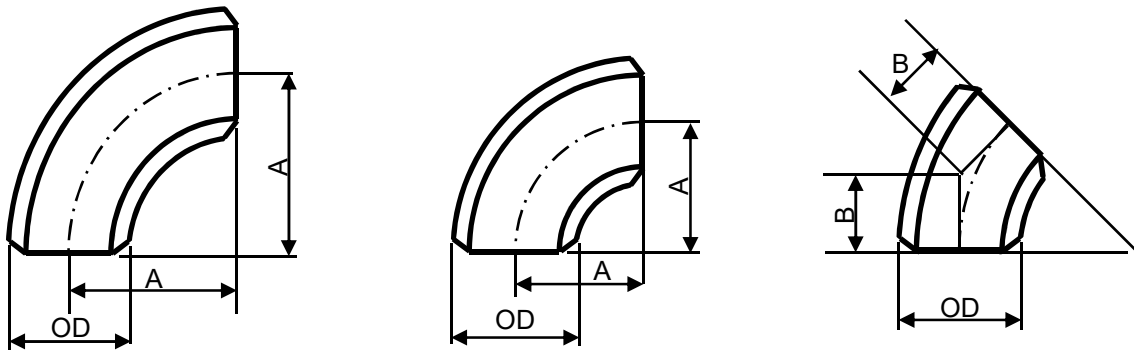


<b>FITTINGS</b>			
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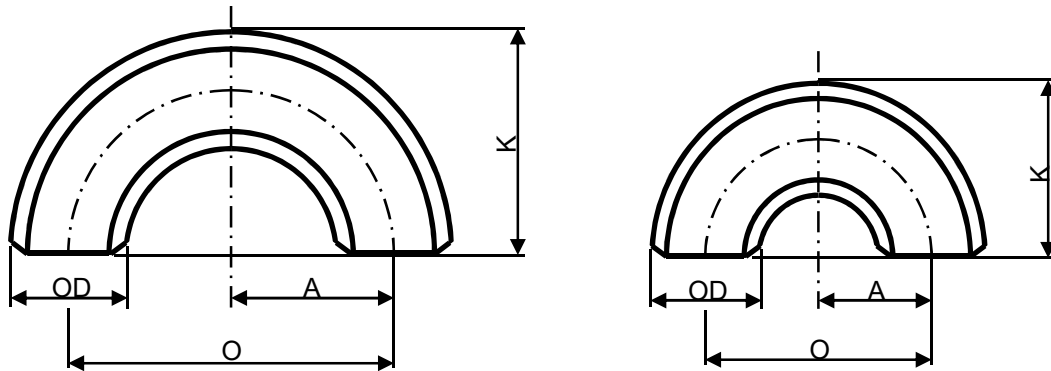
**Long and Short Radius Elbows**



**ASME B16.9, B16.28**

Nominal Pipe Size (NPS)	Outside Diameter at Bevel OD		Center-to-End							
			90 Elbows A				45 Elbows B			
			Long Radius		Short Radius		Long Radius		Short Radius	
IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
1/2	0.84	21.3	1.5	38	-	-	0.62	16	-	-
3/4	1.05	26.7	1.12	29	-	-	0.44	11	-	-
1	1.32	33.4	1.5	38	1	25	0.88	22	0.41	10
1 1/4	1.66	42.2	1.88	48	1.25	32	1	25	0.52	13
1 1/2	1.9	48.3	2.25	57	1.5	38	1.12	29	0.62	16
2	2.38	60.3	3	76	2	51	1.38	35	0.83	21
2 1/2	2.88	73.0	3.75	95	2.5	64	1.75	44	1.04	26
3	3.5	88.9	4.5	114	3	76	2	51	1.24	32
3 1/2	4	101.6	5.25	133	3.5	89	2.25	57	1.45	37
4	4.5	114.3	6	152	4	102	2.5	64	1.66	42
5	5.56	141.3	7.5	190	5	127	3.12	79	2.07	53
6	6.62	168.3	9	229	6	152	3.75	95	2.5	63
8	8.62	219.1	12	305	8	203	5	127	3.31	84
10	10.75	273.0	15	381	10	254	6.25	159	4.14	105
12	12.75	323.8	18	457	12	305	7.5	190	4.97	126
14	14	355.6	21	533	14	356	8.75	222	5.8	147
16	16	406.4	24	610	16	406	10	254	6.63	168
18	18	457	27	686	18	457	11.25	286	7.46	189
20	20	508	30	762	20	508	12.5	318	8.28	210
22	22	559	33	838	22	559	13.5	343	9.11	232
24	24	610	36	914	24	610	15	381	9.94	253
26	26	660	39	991	26	660	16	405	10.77	274
28	28	711	42	1067	28	711	17.25	438	11.6	295
30	30	762	45	1143	30	762	18.5	470	12.43	316
32	32	813	48	1219	32	813	19.75	502	14.89	378
34	34	864	51	1295	34	864	21	533	14.08	358
36	36	914	54	1372	36	914	22.25	565	14.91	379
38	38	965	57	1448	38	965	23.62	600	15.74	400
40	40	1016	60	1524	40	1016	24.88	632	16.57	421
42	42	1067	63	1600	42	1067	26	660	17.4	442
44	44	1118	66	1676	44	1118	27.38	695	18.23	463
46	46	1168	69	1753	46	1168	28.62	727	19.05	484

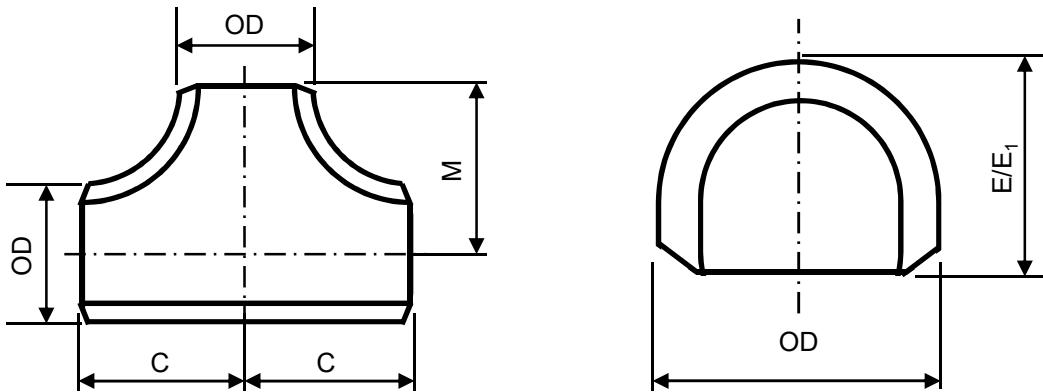
**Long and Short Radius Returns**



**ASME B16.9, B16.28**

Nominal Pipe Size (NPS)	Outside Diameter at Bevel OD		Center-to-End				End-to-End			
			180 Returns O				180 Returns K			
			Long Radius		Short Radius		Long Radius		Short Radius	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	3	76	-	-	1.88	48	-	-
3/4	1.05	26.7	2.25	57	-	-	1.69	43	-	-
1	1.32	33.4	3	76	2	51	2.19	56	1.62	41
1 1/4	1.66	42.2	3.75	95	2.5	64	2.75	70	2.06	52
1 1/2	1.9	48.3	4.5	114	3	76	3.25	83	2.44	62
2	2.38	60.3	6	152	4	102	4.19	106	3.19	81
2 1/2	2.88	73.0	7.5	190	5	127	5.19	132	3.94	100
3	3.5	88.9	9	229	6	152	6.25	159	4.75	121
3 1/2	4	101.6	10.5	267	7	178	7.25	184	5.5	140
4	4.5	114.3	12	305	8	203	8.25	210	6.25	159
5	5.56	141.3	15	381	10	254	10.31	262	7.75	197
6	6.62	168.3	18	457	12	305	12.31	313	9.31	237
8	8.62	219.1	24	610	16	406	16.31	414	12.31	313
10	10.75	273.0	30	762	20	508	20.38	518	15.38	391
12	12.75	323.8	36	914	24	610	24.38	619	18.38	467
14	14	355.6	42	1067	28	711	28	711	21	533
16	16	406.4	48	1219	32	813	32	813	24	610
18	18	457	54	1372	36	914	36	914	27	686
20	20	508	60	1524	40	1016	40	1016	30	762
22	22	559	66	1676	44	1118	44	1118	33	838

**Straight Tees and Caps**



**ASME B16.9**

Nominal Pipe Size (NPS)	Outside Diameter at Bevel OD		Center-to-End				End-to-End					
			Straight Tees				Caps					
			C		M (1)		Length (2)		Limiting Wall Thickness		Length (3)	
			IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	1	25	1	25	1	25	0.18	4.57	1	25
3/4	1.05	26.7	1.12	29	1.12	29	1	25	0.15	3.81	1	25
1	1.32	33.4	1.5	38	1.5	38	1.5	38	0.18	4.57	1.5	38
1 1/4	1.66	42.2	1.88	48	1.88	48	1.5	38	0.19	4.83	1.5	38
1 1/2	1.9	48.3	2.25	57	2.25	57	1.5	38	0.2	5.08	1.5	38
2	2.38	60.3	2.5	64	2.5	64	1.5	38	0.22	5.59	1.75	44
2 1/2	2.88	73.0	3	76	3	76	1.5	38	0.28	7.11	2	51
3	3.5	88.9	3.38	86	3.38	86	2	51	0.3	7.62	2.5	64
3 1/2	4	101.6	3.75	95	3.75	95	2.5	64	0.32	8.13	3	76
4	4.5	114.3	4.12	105	4.12	105	2.5	64	0.34	8.64	3	76
5	5.56	141.3	4.88	124	4.88	124	3	76	0.38	9.65	3.5	89
6	6.62	168.3	5.62	143	5.62	143	3.5	89	0.43	10.92	4	102
8	8.62	219.1	7	178	7	178	4	102	0.5	12.7	5	127
10	10.75	273.0	8.5	216	8.5	216	5	127	0.5	12.7	6	152
12	12.75	323.8	10	254	10	254	6	152	0.5	12.7	7	178
14	14	355.6	11	279	11	279	6.5	165	0.5	12.7	7.5	191
16	16	406.4	12	305	12	305	7	178	0.5	12.7	8	203
18	18	457.2	13.5	343	13.5	343	8	203	0.5	12.7	9	229
20	20	508.0	15	381	15	381	9	229	0.5	12.7	10	254
22	22	558.8	16.5	419	16.5	419	10	254	0.5	12.7	10	254
24	24	609.6	17	432	17	432	10.5	267	0.5	12.7	12	305
26	26	660.4	19.5	495	19.5	495	10.5	267	-	-	-	-
28	28	711.2	20.2	521	20.2	521	10.5	267	-	-	-	-
30	30	762.0	22	559	22	559	10.5	267	-	-	-	-
32	32	812.8	23.5	597	23.5	597	10.5	267	-	-	-	-
34	34	863.6	25	635	25	635	10.5	267	-	-	-	-
36	36	914.4	26.5	673	26.5	673	10.5	267	-	-	-	-
38	38	965.2	28	711	28	711	12	305	-	-	-	-
40	40	1016	29.5	749	29.5	749	12	305	-	-	-	-
42	42	1066.8	30	762	28	711	12	305	-	-	-	-
44	44	1117.6	32	813	30	762	13.5	343	-	-	-	-
46	46	1168.4	33.5	851	31.5	800	13.5	343	-	-	-	-
48	48	1219.2	35	889	33	838	13.5	343	-	-	-	-

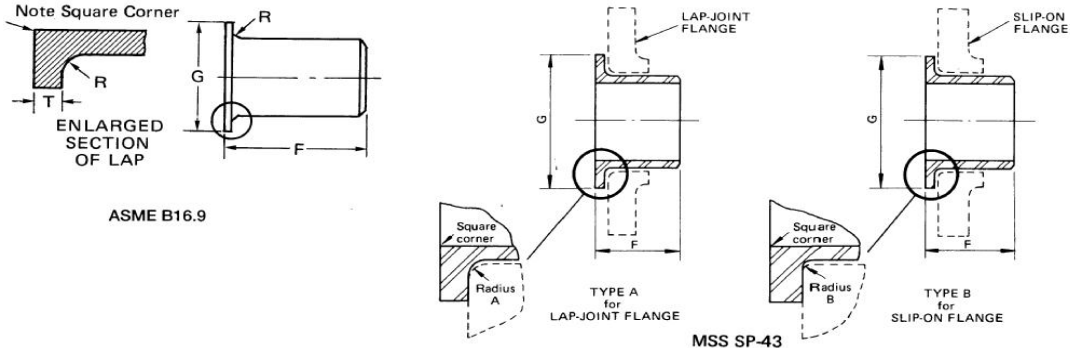
NOTES:

(1) Outlet dimension M for NPS 26 and larger is recommended but not required.

# Wrought Steel Buttwelding Fittings (ASME)

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## Lap Joint Stub Ends

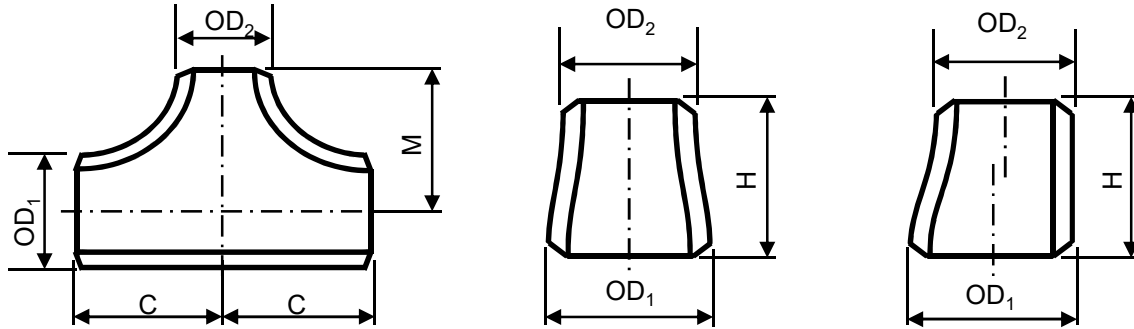


### ASME B16.9 MSS SP-43

Nominal Pipe Size (NPS)	Outside Diameter at Bevel OD		Outside Diameter				Diameter of Lap G (Nominal & Max)	
			Max		Min			
	IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	0.896	22.8	0.809	20.5	1.38	35
3/4	1.05	26.7	1.106	28.1	1.019	25.9	1.69	43
1	1.32	33.4	1.376	35	1.284	32.6	2	51
1 1/4	1.66	42.2	1.716	43.6	1.629	41.4	2.5	64
1 1/2	1.9	48.3	1.965	49.9	1.869	47.5	2.88	73
2	2.38	60.3	2.456	62.4	2.344	59.5	3.62	92
2 1/2	2.88	73.0	2.966	75.3	2.844	72.2	4.12	106
3	3.5	88.9	3.596	91.3	3.469	88.1	5	127
3 1/2	4	101.6	4.096	104	3.969	100.8	5.5	140
4	4.5	114.3	4.593	116.7	4.469	113.5	6.19	157
5	5.56	141.3	5.683	144.3	5.532	140.5	7.31	185
6	6.62	168.3	6.743	171.3	6.594	167.5	8.5	218
8	8.62	219.1	8.743	222.1	8.594	218.3	10.62	270
10	10.75	273.0	10.913	277.2	10.719	272.3	12.75	324
12	12.75	323.8	12.913	328	12.719	323.1	15	381
14	14	355.6	14.17	359.9	13.969	354.8	16.25	413
16	16	406.4	16.18	411	15.969	405.6	18.5	470
18	18	457	18.19	462	17.969	456	21	533
20	20	508	20.24	514	19.969	507	23	584
22	22	559	22.24	565	21.969	558	25.25	641
24	24	610	24.24	616	23.969	609	27.25	692

Nominal Pipe Size (NPS)	Length F				Radius R			
	ASME Long		ASME Short & MSS		MSS Type A & ASME (Nominal & Max)		MSS Type B (max)	
	IN	MM	IN	MM	IN	MM	IN	MM
1/2	3	76	2	51	0.12	3	0.03	0.8
3/4	3	76	2	51	0.12	3	0.03	0.8
1	4	102	2	51	0.12	3	0.03	0.8
1 1/4	4	102	2	51	0.19	5	0.03	0.8
1 1/2	4	102	2	51	0.25	6	0.03	0.8
2	6	152	2.5	64	0.31	8	0.03	0.8
2 1/2	6	152	2.5	64	0.31	8	0.03	0.8
3	6	152	2.5	64	0.38	10	0.03	0.8
3 1/2	6	152	3	76	0.38	10	0.03	0.8
4	6	152	3	76	0.44	11	0.03	0.8
5	8	203	3	76	0.44	11	0.06	1.5
6	8	203	3.5	89	0.5	13	0.06	1.5
8	8	203	4	102	0.5	13	0.06	1.5
10	10	254	5	127	0.5	13	0.06	1.5
12	10	254	6	152	0.5	13	0.06	1.5
14	12	305	6	152	0.5	13	0.06	1.5
16	12	305	6	152	0.5	13	0.06	1.5
18	12	305	6	152	0.5	13	0.06	1.5
20	12	305	6	152	0.5	13	0.06	1.5
22	12	305	6	152	0.5	13	0.06	1.5

**Reducing Tees and Concentric & Eccentric Reducers**



**ASME B16.9**

Nominal Pipe Size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-end	
	OD1		OD2		C		M		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
3/4x1/2	1.05	26.7	0.84	21.3	1.12	29	1.12	29	1.5	38
1x3/4	1.32	33.4	1.05	26.7	1.5	38	1.5	38	2	51
1x1/2	1.32	33.4	0.84	21.3	1.5	38	1.5	38	2	51
1 1/4x1	1.66	42.2	1.32	33.4	1.88	48	1.88	48	2	51
1 1/4x3/4	1.66	42.2	1.05	26.7	1.88	48	1.88	48	2	51
1 1/4x1/2	1.66	42.2	0.84	21.3	1.88	48	1.88	48	2	51
1 1/2x1 1/4	1.9	48.3	1.66	42.2	2.25	57	2.25	57	2.5	64
1 1/2x1	1.9	48.3	1.32	33.4	2.25	57	2.25	57	2.5	64
1 1/2x3/4	1.9	48.3	1.05	26.7	2.25	57	2.25	57	2.5	64
1 1/2x1/2	1.9	48.3	0.84	21.3	2.25	57	2.25	57	2.5	64
2x1 1/2	2.38	60.3	1.9	48.3	2.5	64	2.38	60	3	76
2x1 1/4	2.38	60.3	1.66	42.2	2.5	64	2.25	57	3	76
2x1	2.38	60.3	1.32	33.4	2.5	64	2	51	3	76
2x3/4	2.38	60.3	1.05	26.7	2.5	64	1.75	44	3	76
2x1/2	2.38	60.3	0.84	21.3	2.5	64	*	*	3	76
2 1/2x2	2.88	73	2.38	60.3	3	76	2.75	70	3.5	89
2 1/2x1 1/2	2.88	73	1.9	48.3	3	76	2.62	67	3.5	89
2 1/2x1 1/4	2.88	73	1.66	42.2	3	76	2.5	64	3.5	89
2 1/2x1	2.88	73	1.32	33.4	3	76	2.25	57	3.5	89
2 1/2x3/4	2.88	73	1.05	26.7	3	76	*	*	3.5	89
2 1/2x1/2	2.88	73	0.84	21.3	3	76	*	*	3.5	89
3x2 1/2	3.5	88.9	2.88	73	3.38	86	3.25	83	3.5	89
3x2	3.5	88.9	2.38	60.3	3.38	86	3	76	3.5	89
3x1 1/2	3.5	88.9	1.9	48.3	3.38	86	2.88	73	3.5	89
3x1 1/4	3.5	88.9	1.66	42.2	3.38	86	2.75	70	3.5	89
3x1	3.5	88.9	1.32	33.4	3.38	86	*	*	3.5	89
3x3/4	3.5	88.9	1.05	26.7	3.38	86	*	*	3.5	89
3x1/2	3.5	88.9	0.84	21.3	3.38	86	*	*	3.5	89
3 1/2x3	4	101.6	3.5	88.9	3.75	95	3.62	92	4	102
3 1/2x2 1/2	4	101.6	2.88	73	3.75	95	3.5	89	4	102
3 1/2x2	4	101.6	2.38	60.3	3.75	95	3.25	83	4	102
3 1/2x1 1/2	4	101.6	1.9	48.3	3.75	95	3.12	79	4	102
3 1/2x1 1/4	4	101.6	1.66	42.2	3.75	95	*	*	4	102
4x3 1/2	4.5	114.3	4	101.6	4.12	105	4	102	4	102
4x3	4.5	114.3	3.5	88.9	4.12	105	3.88	98	4	102
4x2 1/2	4.5	114.3	2.88	73	4.12	105	3.75	95	4	102
4x2	4.5	114.3	2.38	60.3	4.12	105	3.5	89	4	102
4x1 1/2	4.5	114.3	1.9	48.3	4.12	105	3.38	86	4	102
4x1 1/4	4.5	114.3	1.66	42.2	4.12	105	*	*	4	102
4x1	4.5	114.3	1.32	33.4	4.12	105	*	*	4	102
5x4	5.56	141.3	4.5	114.3	4.88	124	4.62	117	5	127
5x3 1/2	5.56	141.3	4	101.6	4.88	124	4.5	114	5	127
5x3	5.56	141.3	3.5	88.9	4.88	124	4.38	111	5	127
5x2 1/2	5.56	141.3	2.88	73	4.88	124	4.25	108	5	127
5x2	5.56	141.3	2.38	60.3	4.88	124	4.12	105	5	127
5x1 1/2	5.56	141.3	1.9	48.3	4.88	124	*	*	5	127
5x1 1/4	5.56	141.3	1.66	42.2	4.88	124	*	*	5	127
6x5	6.62	168.3	5.56	141.3	5.62	143	5.38	137	5.5	140
6x4	6.62	168.3	4.5	114.3	5.62	143	5.12	130	5.5	140
6x3 1/2	6.62	168.3	4	101.6	5.62	143	5	127	5.5	140
6x3	6.62	168.3	3.5	88.9	5.62	143	4.88	124	5.5	140
6x2 1/2	6.62	168.3	2.88	73	5.62	143	4.75	121	5.5	140
6x2	6.62	168.3	2.38	60.3	5.62	143	*	*	5.5	140
8x6	8.62	219.1	6.62	168.3	7	178	6.62	168	6	152

8x5	8.62	219.1	5.56	141.3	7	178	6.38	162	6	152
8x4	8.62	219.1	4.5	114.3	7	178	6.12	156	6	152
8x3 1/2	8.62	219.1	4	101.6	7	178	6	152	6	152
8x3	8.62	219.1	3.5	88.9	7	178	*	*	6	152
10x8	10.75	273	8.62	219.1	8.5	216	8	203	7	178
10x6	10.75	273	6.62	168.3	8.5	216	7.62	194	7	178
10x5	10.75	273	5.56	141.3	8.5	216	7.5	191	7	178
10x4	10.75	273	4.5	114.3	8.5	216	7.25	184	7	178
10x3	10.75	273	3.5	88.9	8.5	216	*	*	7	178
12x10	12.75	323.8	10.75	273	10	254	9.5	241	8	203
12x8	12.75	323.8	8.62	219.1	10	254	9	229	8	203
12x6	12.75	323.8	6.62	168.3	10	254	8.62	219	8	203
12x5	12.75	323.8	5.56	141.3	10	254	8.5	216	8	203
12x4	12.75	323.8	4.5	114.3	10	254	*	*	8	203
14x12	14	355.6	12.75	323.8	11	279	10.62	270	13	330
14x10	14	355.6	10.75	273	11	279	10.12	257	13	330
14x8	14	355.6	8.62	219.1	11	279	9.75	248	13	330
14x6	14	355.6	6.62	168.3	11	279	9.38	238	13	330
14x5	14	355.6	5.56	141.3	11	279	*	*	13	330
16x14	16	406.4	14	355.6	12	305	12	305	14	356
16x12	16	406.4	12.75	323.8	12	305	11.62	295	14	356
16x10	16	406.4	10.75	273	12	305	11.12	283	14	356
16x8	16	406.4	8.62	219.1	12	305	10.75	273	14	356
16x6	16	406.4	6.62	168.3	12	305	10.38	264	14	356
18x16	18	457	16	406.4	13.5	343	13	330	15	381
18x14	18	457	14	355.6	13.5	343	13	330	15	381
18x12	18	457	12.75	323.8	13.5	343	12.62	321	15	381
18x10	18	457	10.75	273	13.5	343	12.12	308	15	381
18x8	18	457	8.62	219.1	13.5	343	11.75	298	15	381
20x18	20	508	18	457.2	15	381	14.5	368	20	508
20x16	20	508	16	406.4	15	381	14	356	20	508
20x14	20	508	14	355.6	15	381	14	356	20	508
20x12	20	508	12.75	323.8	15	381	13.62	346	20	508
20x10	20	508	10.75	273	15	381	13.12	333	20	508
20x8	20	508	8.62	219.1	15	381	12.75	324	20	508
22x20	22	559	20	508	16.5	419	16	406	20	508
22x18	22	559	18	457.2	16.5	419	15.5	394	20	508
22x16	22	559	16	406.4	16.5	419	15	381	20	508
22x14	22	559	14	355.6	16.5	419	15	381	20	508
22x12	22	559	12.75	323.8	16.5	419	14.62	371	20	508
22x10	22	559	10.75	273	16.5	419	14.12	359	20	508
24x22	24	610	22	558.8	17	432	17	432	20	508
24x20	24	610	20	508	17	432	17	432	20	508
24x18	24	610	18	457.2	17	432	16.5	419	20	508
24x16	24	610	16	406.4	17	432	16	406	20	508
24x14	24	610	14	355.6	17	432	16	406	20	508
24x12	24	610	12.75	323.8	17	432	15.62	397	20	508
24x10	24	610	10.75	273	17	432	15.12	384	20	508
26x24	26	660	24	609.6	19.5	495	19	483	24	610
26x22	26	660	22	558.8	19.5	495	18.5	470	24	610
26x20	26	660	20	508	19.5	495	18	457	24	610
26x18	26	660	18	457.2	19.5	495	17.5	444	24	610
26x16	26	660	16	406.4	19.5	495	17	432	24	610
26x14	26	660	14	355.6	19.5	495	17	432	24	610
26x12	26	660	12.75	323.8	19.5	495	16.62	422	24	610
28x26	28	711	26	660.4	20.5	521	20.5	521	24	610
28x24	28	711	24	609.6	20.5	521	20	508	24	610
28x22	28	711	22	558.8	20.5	521	19.5	495	24	610
28x20	28	711	20	508	20.5	521	19	483	24	610
28x18	28	711	18	457.2	20.5	521	18.5	470	24	610
28x16	28	711	16	406.4	20.5	521	18	457	24	610
28x14	28	711	14	355.6	20.5	521	18	457	24	610
28x12	28	711	12.75	323.8	20.5	521	17.62	448	24	610
30x28	30	762	28	711.2	22	559	21.5	546	24	610
30 X 26	30	762	26	660.4	22	559	21.5	546	24	610
30 X 24	30	762	24	609.6	22	559	21	533	24	610
30 X 22	30	762	22	558.8	22	559	20.5	521	24	610
30 X 20	30	762	20	508	22	559	20	508	24	610
30 X 18	30	762	18	457.2	22	559	19.5	495	24	610
30 X 16	30	762	16	406.4	22	559	19	483	24	610
30 X 14	30	762	14	355.6	22	559	19	483	24	610
30 X 12	30	762	12.75	323.8	22	559	18.62	473	24	610
30 X 10	30	762	10.75	273	22	559	18.12	460	24	610
32 X 30	32	813	30	762	23.5	597	23	584	24	610
32 X 28	32	813	28	711.2	23.5	597	22.5	572	24	610
32 X 26	32	813	26	660.4	23.5	597	22.5	572	24	610

32 X 24	32	813	24	609.6	23.5	597	22	559	24	610
32 X 22	32	813	22	558.8	23.5	597	21.5	546	24	610
32 X 20	32	813	20	508	23.5	597	21	533	24	610
32 X 18	32	813	18	457.2	23.5	597	20.5	521	24	610
32 X 16	32	813	16	406.4	23.5	597	20	508	24	610
32 X 14	32	813	14	355.6	23.5	597	20	508	24	610
34 X 32	34	864	32	812.8	25	635	24.5	622	24	610
34 X 30	34	864	30	762	25	635	24	610	24	610
34 X 28	34	864	28	711.2	25	635	23.5	597	24	610
34 X 26	34	864	26	660.4	25	635	23.5	597	24	610
34 X 24	34	864	24	609.6	25	635	23	584	24	610
34 X 22	34	864	22	558.8	25	635	22.5	572	24	610
34 X 20	34	864	20	508	25	635	22	559	24	610
34 X 18	34	864	18	457.2	25	635	21.5	546	24	610
34 X 16	34	864	16	406.4	25	635	21	533	24	610
36 X 34	36	914	34	863.6	26.5	673	26	660	24	610
36 X 32	36	914	32	812.8	26.5	673	25.5	648	24	610
36 X 30	36	914	30	762	26.5	673	25	635	24	610
36 X 28	36	914	28	711.2	26.5	673	24.5	622	24	610
36 X 26	36	914	26	660.4	26.5	673	24.5	622	24	610
36 X 24	36	914	24	609.6	26.5	673	24	610	24	610
36 X 22	36	914	22	558.8	26.5	673	23.5	597	24	610
36 X 20	36	914	20	508	26.5	673	23	584	24	610
36 X 18	36	914	18	457.2	26.5	673	22.5	572	24	610
36 X 16	36	914	16	406.4	26.5	673	22	559	24	610
38 X 36	38	965	36	914.4	28	711	28	711	24	610
38 X 34	38	965	34	863.6	28	711	27.5	698	24	610
38 X 32	38	965	32	812.8	28	711	27	686	24	610
38 X 30	38	965	30	762	28	711	26.5	673	24	610
38 X 28	38	965	28	711.2	28	711	25.5	648	24	610
38 X 26	38	965	26	660.4	28	711	25.5	648	24	610
38 X 24	38	965	24	609.6	28	711	25	635	24	610
38 X 22	38	965	22	558.8	28	711	24.5	622	24	610
38 X 20	38	965	20	508	28	711	24	610	24	610
38 X 18	38	965	18	457.2	28	711	23.5	597	24	610
40 X 38	40	1016	38	965.2	29.5	749	29.5	749	24	610
40 X 36	40	1016	36	914.4	29.5	749	29	737	24	610
40 X 34	40	1016	34	853.6	29.5	749	28.5	724	24	610
40 X 32	40	1016	32	812.8	29.5	749	28	711	24	610
40 X 30	40	1016	30	762	29.5	749	27.5	698	24	610
40 X 28	40	1016	28	711.2	29.5	749	26.5	673	24	610
40 X 26	40	1016	26	660.4	29.5	749	26.5	673	24	610
40 X 24	40	1016	24	609.6	29.5	749	26	660	24	610
40 X 22	40	1016	22	558.8	29.5	749	25.5	648	24	610
40 X 20	40	1016	20	508	29.5	749	25	635	24	610
40 X 18	40	1016	18	457.2	29.5	749	24.5	622	24	610
42X 40	42	1067	40	1016	30	762	28	711	24	610
42 X 38	42	1067	38	965.2	30	762	28	711	24	610
42 X 36	42	1067	36	914.4	30	762	28	711	24	610
42 X 34	42	1067	34	863.6	30	762	28	711	24	610
42 X 32	42	1067	32	812.8	30	762	28	711	24	610
42 X 30	42	1067	30	762	30	762	28	711	24	610
42 X 28	42	1067	28	711.2	30	762	27.5	698	24	610
42 X 26	42	1067	26	660.4	30	762	27.5	698	24	610
42 X 24	42	1067	24	609.6	30	762	26	660	24	610
42 X 22	42	1067	22	558.8	30	762	26	660	24	610
42 X 20	42	1067	20	508	30	762	26	660	24	610
42 X 18	42	1067	18	457.2	30	762	25.5	648	24	610
42 X 16	42	1067	16	406.4	30	762	25	635	24	610
44 X 42	44	1118	42	1066.8	32	813	30	762	24	610
44 X 40	44	1118	40	1016	32	813	29.5	749	24	610
44 X 38	44	1118	38	965.2	32	813	29	737	24	610
44 X 36	44	1118	36	914.4	32	813	28.5	724	24	610
44 X 34	44	1118	34	863.6	32	813	28.5	724	24	610
44 X 32	44	1118	32	812.8	32	813	28	711	24	610
44 X 30	44	1118	30	762	32	813	28	711	24	610
44 X 28	44	1118	28	711.2	32	813	27.5	698	24	610
44 X 26	44	1118	26	660.4	32	813	27.5	698	24	610
44 X 24	44	1118	24	609.6	32	813	27.5	698	24	610
44 X 22	44	1118	22	558.8	32	813	27	686	24	610
44 X 20	44	1118	20	508	32	813	27	686	24	610
46 X 44	46	1168	44	1117.6	33.5	851	31.5	800	28	711
46 X 42	46	1168	42	1066.8	33.5	851	31	787	28	711
46 X 40	46	1168	40	1016	33.5	851	30.5	775	28	711
46 X 38	46	1168	38	965.2	33.5	851	30	762	28	711
46 X 36	46	1168	36	914.4	33.5	851	30	762	28	711

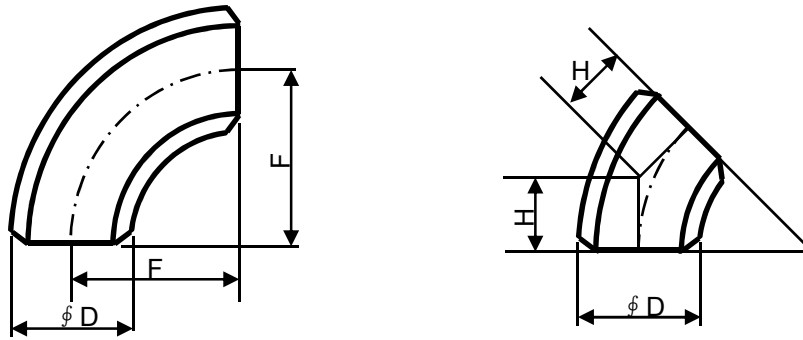


46 X 34	46	1168	34	863.6	33.5	851	29.5	749	28	711
46 X 32	46	1168	32	812.8	33.5	851	29.5	749	28	711
46 X 30	46	1168	30	762	33.5	851	29	737	28	711
46 X 28	46	1168	28	711.2	33.5	851	29	737	28	711
46 X 26	46	1168	26	660.4	33.5	851	29	737	28	711
46 X 24	46	1168	24	609.6	33.5	851	28.5	724	28	711
46 X 22	46	1168	22	558.8	33.5	851	28.5	724	28	711
48 X 46	48	1219	46	1168.4	35	889	33	838	28	711
48 X 44	48	1219	44	1117.6	35	889	33	838	28	711
48 X 42	48	1219	42	1066.8	35	889	32	813	28	711
48 X 40	48	1219	40	1016	35	889	32	813	28	711
48 X 38	48	1219	38	965.2	35	889	32	813	28	711
48 X 36	48	1219	36	914.4	35	889	31	787	28	711
48 X 34	48	1219	34	863.6	35	889	31	787	28	711
48 X 32	48	1219	32	812.8	35	889	31	787	28	711
48 X 30	48	1219	30	762	35	889	30	762	28	711
48 X 28	48	1219	28	711.2	35	889	30	762	28	711
48 X 26	48	1219	26	660.4	35	889	30	762	28	711
48 X 24	48	1219	24	609.6	35	889	29	737	28	711
48 X 22	48	1219	22	558.8	35	889	29	737	28	711

NOTE:

(1) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.

## 90D & 45D elbows

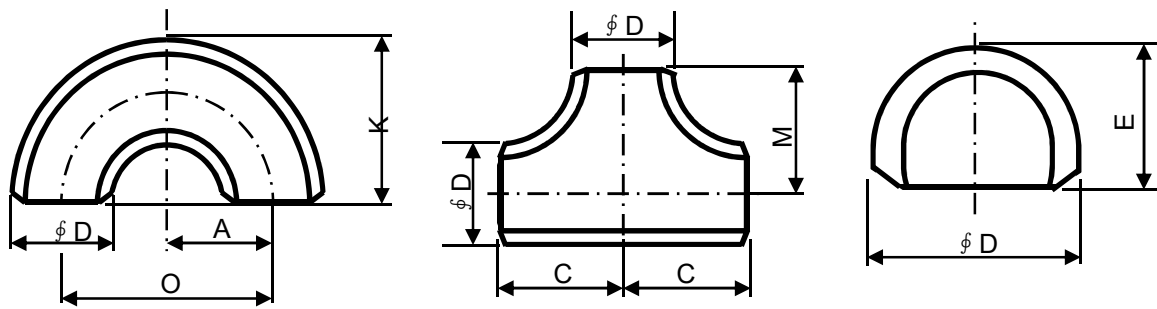


JIS B2311

Unit:mm

Nominal Pipe Size (NPS)		Outside Diameter D	Center to End			
			90 Elbows(F)		45 Elbows(H)	
A	B		Long	Short	Long	Short
15	1/2	21.7	38.1	—	15.8	—
20	3/4	27.2	38.1	—	15.8	—
25	1	34.0	38.1	25.4	15.8	10.5
32	1 1/2	42.7	47.6	31.8	19.7	13.2
40	1 1/4	48.6	57.2	38.1	23.7	15.8
50	2	60.5	76.2	50.8	31.6	21.0
65	2 1/2	76.3	95.3	63.5	39.5	26.3
80	3	89.1	114.3	76.2	47.3	31.6
90	3 1/2	101.6	133.4	88.9	55.3	36.8
100	4	114.3	152.4	101.6	63.1	42.1
125	5	139.8	190.5	127.0	78.9	52.6
150	6	165.2	228.6	152.4	94.7	63.1
200	8	216.3	304.8	203.2	126.3	84.2
250	10	267.4	381.0	254.0	157.8	105.2
300	12	318.5	457.2	304.8	189.4	126.3
350	14	355.6	533.4	355.6	220.9	147.3
400	16	406.4	609.6	406.4	252.5	168.4
450	18	457.2	685.8	457.2	284.1	189.4
500	20	508.0	762.0	508.0	315.6	210.4
550	22	558.8	838.2	558.8	347.2	231.5
600	24	609.6	914.4	609.6	378.7	252.5
650	26	660.4	990.6	660.4	410.3	273.6
700	28	711.2	1066.8	711.2	441.9	294.6
750	30	762.0	1143.0	762.0	473.4	315.7
800	32	812.8	1219.2	812.8	505.0	336.7
850	34	863.6	1259.4	863.6	536.6	357.7
900	36	914.4	1371.6	914.4	568.1	378.8
950	38	965.2	1447.8	965.2	599.7	399.8
1000	40	1016.0	1524.0	1016.0	631.2	420.9
1050	42	1066.8	1600.2	1066.8	662.8	441.9
1100	44	1117.6	1676.4	1117.6	694.4	463.0
1150	46	1168.4	1752.6	1168.4	725.9	484.0
1200	48	1219.2	1828.8	1219.2	757.0	505.1

**180D Elbows, Caps, & Tees**



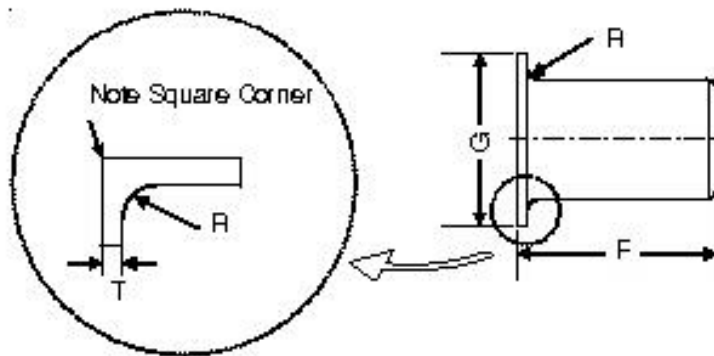
JIS B2311

Unit:mm

Nominal Pipe Size (NPS)		Outside Diameter D	Center to Center		End to End			Center to End	
			180Elbows(P)		180Elbows(K)		Caps	Tees	
A	B		Long	Short	Long	Short	E(2)	C	M
15	1/2	21.7	76.2	—	49.0	—	25.4	25.4	25.4
20	3/4	27.2	76.2	—	51.7	—	25.4	28.6	28.6
25	1	34.0	76.2	50.8	55.1	42.4	38.1	38.1	38.1
32	1 1/4	42.7	95.2	63.6	69.0	53.2	38.1	47.6	47.6
40	1 1/2	48.6	114.4	76.2	81.5	62.4	38.1	57.2	57.2
50	2	60.5	152.4	101.6	106.5	81.1	38.1	63.5	63.5
65	2 1/2	76.3	190.6	127.0	133.5	101.7	38.1	76.2	76.2
80	3	89.1	228.6	152.4	158.9	120.8	50.8	85.7	85.7
90	3 1/2	101.6	266.8	177.8	184.2	139.7	63.5	95.3	95.3
100	4	114.3	304.8	203.2	209.6	158.8	63.5	104.8	104.8
125	5	139.8	381.0	254.0	260.4	196.9	76.2	123.8	123.8
150	6	165.2	457.2	304.8	311.2	235.0	88.9	142.9	142.9
200	8	216.3	609.6	406.4	413.0	311.4	101.6	177.8	177.8
250	10	267.4	762.0	508.0	514.7	387.7	127.0	215.9	215.9
300	12	318.5	914.4	609.6	616.5	464.1	152.4	254.0	254.0
350	14	355.6	1066.8	711.2	711.2	533.4	165.1	279.4	279.4
400	16	406.4	1219.2	812.8	812.8	609.6	177.8	304.8	304.8
450	18	457.2	1371.6	914.4	914.4	685.8	203.2	342.9	342.9
500	20	508.0	1524.0	1016.0	1016.0	762.0	228.6	381.0	381.0
550	22	558.8	—	—	—	—	—	419.1	419.1
600	24	609.6	—	—	—	—	—	431.8	431.8
650	26	660.4	—	—	—	—	—	495.3	495.3
700	28	711.2	—	—	—	—	—	520.7	520.7
750	30	762.0	—	—	—	—	—	558.8	558.8
800	32	812.8	—	—	—	—	—	596.9	596.9
850	34	863.6	—	—	—	—	—	635.0	635.0
900	36	914.4	—	—	—	—	—	673.1	673.1
950	38	965.2	—	—	—	—	—	711.2	711.2
1000	40	1016.0	—	—	—	—	—	749.3	749.3
1050	42	1066.8	—	—	—	—	—	762.0	711.2
1100	44	1117.6	—	—	—	—	—	812.8	762.0
1150	46	1168.4	—	—	—	—	—	850.9	800.1
1200	48	1219.2	—	—	—	—	—	889.0	838.2

NOTES:

**Lap Joint Stub Ends**



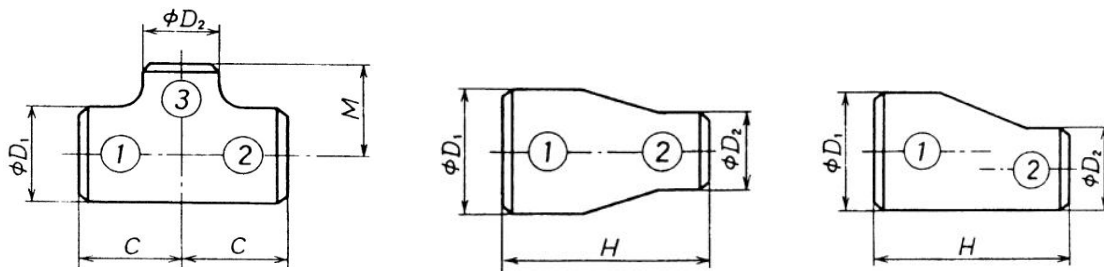
**JIS B2220**

**JPI-7S-15**

Unit:mm

Nominal Pipe Size (NPS)		Outside Diameter D	Diameter of Lap(G)			Length(F)		Radius of Fillet(R)	
A	B		JIS		JPI	JIS	JPI	JIS	JPI
			5K	10K					
15	1/2	21.7	44	51	35	30	50	3	3.2
20	3/4	27.2	49	56	43	30	50	3	3.2
25	1	34	59	67	51	50	50	3	3.2
32	1 1/4	42.7	70	76	64	50	50	4	4.8
40	1 1/2	48.6	75	81	73	50	50	4	6.4
50	2	60.5	85	96	92	50	65	4	7.9
65	2 1/2	76.3	110	116	105	50	65	5	7.9
80	3	89.1	121	126	127	50	65	5	9.5
90	3 1/2	—	—	—	—	—	—	—	—
100	4	114.3	141	151	157	50	75	5	11.1
125	5	139.8	176	182	186	50	75	6	11.1
150	6	165.2	206	212	216	50	90	6	12.7
200	8	216.3	252	262	270	65	100	6	12.7
250	10	267.4	317	324	324	65	125	6	12.7
300	12	318.5	360	368	381	65	150	8	12.7
350	14	355.6	403	413	—	150	—	8	—
400	16	406.4	463	475	—	150	—	8	—
450	18	457.2	523	530	—	150	—	8	—
500	20	508	573	585	—	150	—	8	—
550	22	558.8	630	640	—	150	—	8	—
600	24	609.6	680	690	—	150	—	8	—

**Reducing Tees and Concentric & Eccentric Reducers**



**JIS B2311**

Unit:mm

Nominal Pips Size (NPS)		Outside Diameter		Reducing Tees		Reducers
				Center-to-End		End-to-End
A	B	D1	D2	C	M	H
20 x 15	3/4x1/2	27.2	21.7	28.6	28.6	38.1
25 x 20	1x3/4	34.0	27.2	38.1	38.1	50.8
25 x 15	1x1/2	34.0	21.7	38.1	38.1	50.8
32 x 25	1 1/4x1	42.7	34.0	47.6	47.6	50.8
32 x 20	1 1/4x3/4	42.7	27.2	47.6	47.6	50.8
32 x 15	1 1/4x1/2	42.7	21.7	47.6	47.6	50.8
40 x 32	1 1/2x1 1/4	48.6	42.7	57.2	57.2	63.5
40 x 25	1 1/2x1	48.6	34.0	57.2	57.2	63.5
40 x 20	1 1/2x3/4	48.6	27.2	57.2	57.2	63.5
40 x 15	1 1/2x1/2	48.6	21.7	57.2	57.2	63.5
50 x 40	2x1 1/2	60.5	48.6	63.5	60.3	88.9
50 x 32	2x1 1/4	60.5	42.7	63.5	57.2	88.9
50 x 25	2x1	60.5	34.0	63.5	50.8	88.9
50 x 20	2x3/4	60.5	27.2	63.5	44.5	88.9
50 x 15	2x1/2	60.5	21.7	63.5	*	88.9
65 x 50	2 1/2x2	76.3	60.5	76.2	69.9	88.9
65 x 40	2 1/2x1 1/2	76.3	48.6	76.2	66.7	88.9
65 x 32	2 1/2x1 1/4	76.3	42.7	76.2	63.5	88.9
65 x 25	2 1/2x1	76.3	34.0	76.2	57.2	88.9
65 x 20	2 1/2x3/4	76.3	27.2	76.2	*	88.9
65 x 15	2 1/2x1/2	76.3	21.7	76.2	*	88.9
80 x 65	3x2 1/2	89.1	76.3	85.7	82.6	88.9
80 x 50	3x2	89.1	60.5	85.7	76.2	88.9
80 x 40	3x1 1/2	89.1	48.6	85.7	73.0	88.9
80 x 32	3x1 1/4	89.1	42.7	85.7	69.6	88.9
80 x 25	3x1	89.1	34.0	85.7	*	88.9
80 x 20	3x3/4	89.1	27.2	85.7	*	88.9
80 x 15	3x1/2	89.1	21.7	85.7	*	88.9
90 x 80	3 1/2x3	101.6	89.1	95.3	92.1	101.6
90 x 65	3 1/2x2 1/2	101.6	76.3	95.3	88.9	101.6
90 x 50	3 1/2x2	101.6	60.5	95.3	82.9	101.6
90 x 40	3 1/2x1 1/2	101.6	48.6	95.3	79.4	101.6
90 x 32	3 1/2x1 1/4	101.6	42.7	95.3	*	101.6
100 x 90	4x3 1/2	114.3	101.6	104.8	101.6	101.6
100 x 80	4x3	114.3	89.1	104.8	98.4	101.6
100 x 65	4x2 1/2	114.3	76.3	104.8	95.3	101.6
100 x 50	4x2	114.3	60.5	104.8	88.9	101.6
100 x 40	4x1 1/2	114.3	48.6	104.8	85.7	101.6
100 x 32	4x1 1/4	114.3	42.7	104.8	*	101.6
100 x 25	4x1	114.3	34.0	104.8	*	101.6
125 x 100	5x4	139.8	114.3	123.8	117.5	127.0

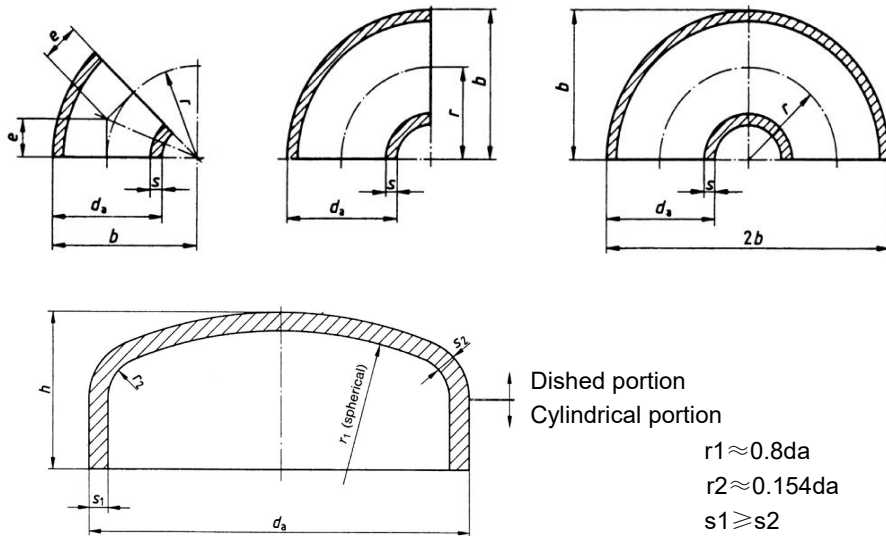
125 x 65	5×2 1/2	139.8	76.3	123.8	108.0	127.0
125 x 50	5×2	139.8	60.5	123.8	104.8	127.0
125 x 40	5×1 1/2	139.8	48.6	123.8	*	127.0
125 x 32	5×1 1/4	139.8	42.7	123.8	*	127.0
150 x 125	6×5	165.2	139.8	142.9	136.5	139.7
150 x 100	6×4	165.2	114.3	142.9	130.2	139.7
150 x 90	6×3 1/2	165.2	101.6	142.9	127.0	139.7
150 x 80	6×3	165.2	89.1	142.9	123.8	139.7
150 x 65	6×2 1/2	165.2	76.3	142.9	120.7	139.7
150 x 50	6×2	165.2	60.5	142.9	*	139.7
200 x 150	8×6	216.3	165.2	177.8	168.3	152.4
200 x 125	8×5	216.3	139.8	177.8	161.9	152.4
200 x 100	8×4	216.3	114.3	177.8	155.6	152.4
200 x 90	8×3 1/2	216.3	101.6	177.8	152.4	152.4
200 x 80	8×3	216.3	89.1	177.8	152.4	152.4
250 x 200	10×8	267.4	216.3	215.9	203.2	177.8
250 x 150	10×6	267.4	165.2	215.9	193.7	177.8
250 x 125	10×5	267.4	139.8	215.9	190.5	177.8
250 x 100	10×4	267.4	114.3	215.9	184.2	177.8
250 x 80	10×3	267.4	89.1	215.9	*	177.8
300 x 250	12×10	318.5	267.4	254.0	241.3	203.2
300 x 200	12×8	318.5	216.3	254.0	228.6	203.2
300 x 150	12×6	318.5	165.2	254.0	219.1	203.2
300 x 125	12×5	318.5	139.8	254.0	215.9	203.3
300 x 100	12×4	318.5	114.3	254.0	*	203.3
350 x 300	14×12	355.6	318.5	279.4	269.9	330.2
350 x 250	14×10	355.6	267.4	279.4	257.2	330.2
350 x 200	14×8	355.6	216.3	279.4	247.7	330.2
350 x 150	14×6	355.6	165.2	279.4	238.1	330.2
350 x 125	14×5	355.6	139.8	279.4	*	330.2
400 x 350	16×14	406.4	355.6	304.8	304.8	355.6
400 x 300	16×12	406.4	318.5	304.8	295.3	355.6
400 x 250	16×10	406.4	267.4	304.8	282.6	355.6
400 x 200	16×8	406.4	216.3	304.8	273.1	355.6
400 x 150	16×6	406.4	165.2	304.8	263.5	355.6
450 x 400	18 x 16	457.2	406.4	342.9	330.2	381.0
450 x 350	18 x 14	457.2	355.6	342.9	330.2	381.0
450 x 300	18 x 12	457.2	318.5	342.9	320.7	381.0
450 x 250	18 x 10	457.2	267.4	342.9	308.0	381.0
450 x 200	18 x 8	457.2	216.3	342.9	298.0	381.0
500 x 450	20 x 18	508.0	457.2	381.0	368.3	508.0
500 x 400	20 x 16	508.0	406.4	381.0	355.6	508.0
500 x 350	20 x 14	508.0	355.6	381.0	355.6	508.0
500 x 300	20 x 12	508.0	318.5	381.0	346.1	508.0
500 x 250	20 x 10	508.0	267.4	381.0	333.4	508.0
500 x 200	20 x 8	508.0	216.3	381.0	523.9	508.0
550 x 500	22 x 20	558.8	508.0	419.1	406.4	508.0
550 x 450	22 x 18	558.8	457.2	419.1	393.7	508.0
550 x 400	22 x 16	558.8	406.4	419.1	381.0	508.0
550 x 350	22 x 14	558.8	355.6	419.1	381.0	508.0
600 x 550	24 x 22	609.6	558.8	431.8	431.8	508.0
600 x 500	24 x 20	609.6	508.0	431.8	431.8	508.0
600 x 450	24 x 18	609.6	457.2	431.8	419.1	508.0
600 x 400	24 x 16	609.6	406.4	431.8	406.4	508.0
600 x 350	24 x 14	609.6	355.6	431.8	406.4	508.0

650 x 550	26 x 22	660.4	558.8	495.3	469.9	609.6
650 x 500	26 x 20	660.4	508.0	495.3	457.2	609.6
650 x 450	26 x 18	660.4	457.2	495.3	444.0	609.6
700 x 650	28 x 26	711.2	660.4	520.7	520.7	609.6
700 x 600	28 x 24	711.2	609.6	520.7	508.0	609.6
700 x 550	28 x 22	711.2	558.8	520.7	495.3	609.6
700 x 500	28 x 20	711.2	508.0	520.7	483.0	609.6
750 x 700	30 x 28	762.0	711.2	558.8	546.1	609.6
750 x 650	30 x 26	762.0	660.4	558.8	546.1	609.6
750 x 600	30 x 24	762.0	609.4	558.8	533.4	609.6
750 x 550	30 x 22	762.0	558.8	558.8	520.7	609.6
800 x 750	32 x 30	812.8	762.0	596.9	584.2	609.6
800 x 700	32 x 28	812.8	711.2	596.9	571.5	609.6
800 x 650	32 x 26	812.8	660.4	596.9	571.5	609.6
800 x 600	32 x 24	812.8	609.6	596.9	559.0	609.6
850 X 800	34 X 32	863.6	812.8	635.0	622.3	609.6
850 X 750	34 X 30	863.6	762.0	635.0	609.6	609.6
850 X 700	34 X 28	863.6	711.2	635.0	596.9	609.6
850 X 650	34 X 26	863.6	660.4	635.0	596.9	609.6
900 X 850	36 X 34	914.4	863.6	673.1	660.4	609.6
900 X 800	36 X 32	914.4	812.8	673.1	647.7	609.6
900 X 750	36 X 30	914.4	762.0	673.1	635.0	609.6
900 X 700	36 X 28	914.4	711.2	673.1	622.3	609.6
950 X 900	38 X 36	965.2	914.4	711.2	711.2	609.6
950 X 850	38 X 34	965.2	863.6	711.2	698.5	609.6
950 X 800	38 X 32	965.2	812.8	711.2	685.8	609.6
950 X 750	36 X 30	965.2	762.0	711.2	673.0	609.6
1000 X 950	40 X 38	1016.0	965.2	743.9	749.3	609.6
1000 X 900	40 X 36	1016.0	914.4	743.9	736.6	609.6
1000 X 850	40 X 34	1016.0	863.6	743.9	723.9	609.6
1000 X 800	40 X 32	1016.0	812.8	743.9	711.2	609.6
1050 X 1000	42 X 40	1066.8	1016.0	762.0	711.2	609.6
1050 X 950	42 X 38	1066.8	965.2	762.0	711.2	609.6
1050 X 900	42 X 36	1066.8	914.4	762.0	711.2	609.6
1050 X 850	42 X34	1066.8	863.6	762.0	711.2	609.6
1100 X 1050	44 X 42	1117.6	1066.8	812.8	762.0	609.6
1100 X 1000	44 X 40	1117.6	1016.0	812.8	749.3	609.6
1100 X 950	44 X 38	1117.6	965.2	812.8	736.6	609.6
1100 X 900	44 X 36	1117.6	914.4	812.8	723.9	609.6
1150 X 1100	46 X 44	1168.4	1117.6	850.9	811.1	711.2
1150 X 1050	46 X 42	1168.4	1066.8	850.9	787.4	711.2
1150 X 1000	46 X 40	1168.4	1016.0	850.9	774.7	711.2
1150 X 950	46 X 38	1168.4	965.2	850.9	762.0	711.2
1200 X 1150	48 X 46	1219.2	1168.4	889.0	838.2	711.2
1200 X 1100	48 X 44	1219.2	1117.6	889.0	838.2	711.2
1200 X 1050	48 X 42	1219.2	1066.8	889.0	812.8	711.2
1200 X 1000	48 X 40	1219.2	1016.0	889.0	812.8	711.2

# Steel Butt-welding Pipe Fittings (DIN)

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## Elbows, Bends, and Caps



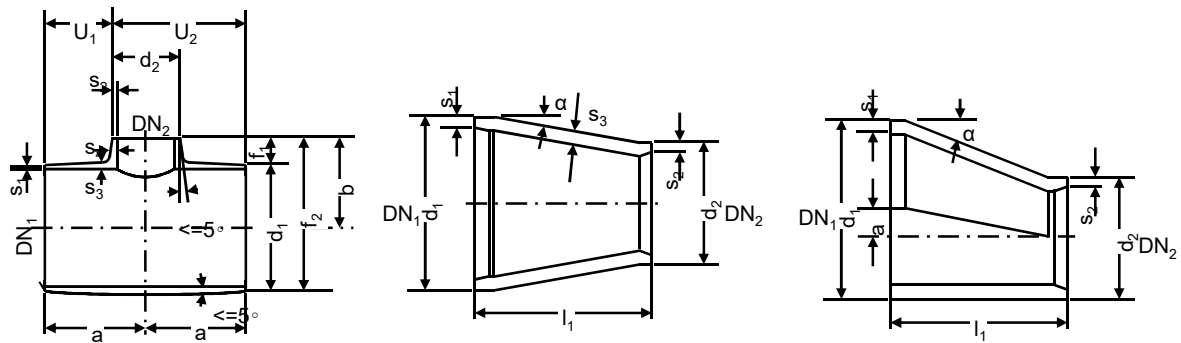
DIN 2605 DIN 2617

Unit:mm

Nominal Size DN	Outside Diameter da	Elbows and Bends						Caps h
		Type 3- -3D			Tye 5- -5D			
		r	b	e	r	b	e	
15	21.3	28.0	38	12	42.5	53	18	25
20	26.9	29.0	43	12	57.5	71	24	25
25	33.7	38.0	56	16	72.5	90	30	38
32	42.4	48.0	69	20	92.5	114	38	38
40	48.3	57.0	82	24	107.5	132	45	38
50	60.3	76	106	32	135	165	56	38
65	76.1	95	133	39	175	213	73	38
80	88.9	114	159	47	205	250	85	51
100	114.3	152	210	63	270	327	112	64
125	139.7	190	260	79	330	400	137	76
150	168.3	229	313	95	390	474	162	89
200	219.1	305	414	126	510	620	211	102
250	273	381	518	158	650	787	269	127
300	323.9	457	619	189	775	937	321	152
350	355.6	533	711	221	850	1028	352	165
400	406.4	610	813	253	970	1173	402	178
450	457	686	914	284	1122	1350	465	203
500	508	762	1016	316	1245	1500	516	229
600	610	914	1219	379	1525	1830	632	267
700	711	1067	1422	442	1778	2133	737	267
800	813	1219	1626	505	2033	2439	842	267
900	914	1372	1829	568	2285	2742	947	267
1000	1016	1524	2032	631	2540	3048	1052	305
1200	1220	1830	2440	758	3050	3660	1263	343



## Tees and Concentric & Eccentric Reducers



DIN 2615 DIN 2616

Unit:mm

Nominal Size DN 1	Outside Diameter d1	Nominal Size DN 2	Outside Diameter d2	Tees		Reducers
				a	b	l1
15	21.3	15	21.3	25	25	38
20	26.9	20	26.9	29	29	38
20	26.9	15	21.3	29	29	38
25	33.7	25	33.7	38	38	50
25	33.7	20	26.9	38	38	50
25	33.7	15	21.3	38	38	50
32	42.4	32	42.4	48	48	50
32	42.4	25	33.7	48	48	50
32	42.4	20	26.9	48	48	50
32	42.4	15	21.3	48	48	50
40	48.3	40	48.3	57	57	64
40	48.3	32	42.4	57	57	64
40	48.3	25	33.7	57	57	64
40	48.3	20	26.9	57	57	64
50	60.3	50	60.3	64	64	76
50	60.3	40	48.3	64	60	76
50	60.3	32	42.4	64	57	76
50	60.3	25	33.7	64	51	76
50	60.3	20	26.9	64	44	76
65	76.1	65	76.1	76	76	90
65	76.1	50	60.3	76	70	90
65	76.1	40	48.3	76	67	90
65	76.1	32	42.4	76	64	90
65	76.1	25	33.7	76	57	90
80	88.9	80	88.9	86	86	90
80	88.9	65	76.1	86	83	90
80	88.9	50	60.3	86	76	90
80	88.9	40	48.3	86	73	90
80	88.9	32	42.4	86	70	90
100	114.3	100	114.3	105	105	100
100	114.3	80	88.9	105	98	100
100	114.3	65	76.1	105	95	100
100	114.3	50	60.3	105	89	100
100	114.3	40	48.3	105	86	100
125	139.7	125	139.7	124	124	127
125	139.7	100	114.3	124	117	127
125	139.7	80	88.9	124	111	127
125	139.7	65	76.1	124	108	127
125	139.7	50	60.3	124	105	127
150	168.3	150	168.3	143	143	140
150	168.3	125	139.7	143	137	140
150	168.3	100	114.3	143	130	140
150	168.3	80	88.9	143	124	140

200	219.1	150	168.3	178	168	152
200	219.1	125	139.7	178	162	152
200	219.1	100	114.3	178	156	152
200	219.1	80	88.9	178	152	152
250	273	250	273	216	216	178
250	273	200	219.1	216	203	178
250	273	150	168.3	216	194	178
250	273	125	139.7	216	191	178
250	273	100	114.3	216	184	178
300	323.9	300	323.9	254	254	203
300	323.9	250	273	254	241	203
300	323.9	200	219.1	254	229	203
300	323.9	150	168.3	254	219	203
300	323.9	125	139.7	254	216	203
350	355.6	350	355.6	279	279	330
350	355.6	300	323.9	279	270	330
350	355.6	250	273	279	257	330
350	355.6	200	219.1	279	248	330
350	355.6	150	168.3	279	238	330
400	406.4	400	406.4	305	305	355
400	406.4	350	355.6	305	305	355
400	406.4	300	323.9	305	295	355
400	406.4	250	273	305	283	355
400	406.4	200	219.1	305	273	355
400	406.4	150	168.3	305	264	355
450	457	450	457	343	343	381
450	457	400	406.4	343	330	381
450	457	350	355.6	343	330	381
450	457	300	323.9	343	321	381
450	457	250	273	343	308	381
500	457	200	219.1	343	298	381
500	508	500	508	381	381	508
500	508	450	457	381	368	508
500	508	400	406.4	381	356	508
500	508	350	355.6	381	356	508
500	508	300	323.9	381	346	508
500	508	250	273	381	333	508
500	508	200	219.1	381	324	508
600	610	600	610	432	432	508
600	610	500	508	432	432	508
600	610	450	457	432	419	508
600	610	400	406.4	432	406	508
600	610	350	355.6	432	406	508
600	610	300	323.9	432	397	508
600	610	250	273	432	384	508
700	711	700	711	521	521	610
700	711	600	610	521	508	610
700	711	500	508	521	483	610
700	711	450	457	521	470	610
700	711	400	406.4	521	457	610
700	711	350	355.6	521	457	610
700	711	300	323.9	521	448	610
800	813	800	813	597	597	610
800	813	700	711	597	572	610
800	813	600	610	597	559	610
800	813	500	508	597	533	610
800	813	450	457	597	521	610
800	813	400	406.4	597	508	610
800	813	350	355.6	597	508	610
900	914	900	914	673	673	610
900	914	800	813	673	648	610
900	914	700	711	673	622	610
900	914	600	610	673	610	610

900	914	450	457	673	572	610
900	914	400	406.4	673	559	610
1000	1016	1000	1016	749	749	610
1000	1016	900	914	749	737	610
1000	1016	800	813	749	711	610
1000	1016	700	711	749	673	610
1000	1016	600	610	749	660	610
1000	1016	500	508	749	635	610
1000	1016	450	457	749	622	610
1200	1220	1220	1220	889	838	711
1200	1220	1000	1016	889	813	711
1200	1220	900	914	889	787	711
1200	1220	800	813	889	787	711
1200	1220	700	711	889	762	711
1200	1220	600	610	889	737	711

## Approximate Weights of Buttwelding Fittings - LR90 Elbows

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NPS	DIN S3 3D	DIN S3 5D	SGP/LG	Sch5/5s	Sch10s	Sch40s	Sch80s	Sch10	Sch20	Sch30
1/2	0.04	0.07	0.08	0.06	0.06	0.08	0.10	0.06	—	0.06
3/4	0.07	0.13	0.10	0.07	0.07	0.11	0.14	0.07	—	0.07
1	0.12	0.23	0.15	0.08	0.14	0.16	0.19	0.14	—	0.14
1 1/4	0.19	0.37	0.26	0.12	0.19	0.25	0.35	0.19	—	0.21
1 1/2	0.26	0.50	0.35	0.17	0.27	0.37	0.49	0.27	—	0.31
2	0.49	0.87	0.64	0.29	0.47	0.66	0.87	0.47	—	0.54
2 1/2	0.78	1.44	1.12	0.54	0.78	1.32	1.77	0.78	—	1.22
3	1.22	2.18	1.58	0.80	1.13	2.02	2.81	1.13	—	1.75
3 1/2	—	—	2.11	1.05	1.49	2.91	3.96	1.49	—	2.43
4	2.36	4.17	2.91	1.36	1.94	3.88	5.45	1.94	—	3.07
5	4.01	6.94	4.49	2.75	3.36	6.62	9.68	3.36	—	—
6	6.53	11.1	7.09	3.94	4.81	10.6	15.9	4.81	—	—
8	15.8	26.5	14.4	6.87	9.27	20.3	31.7	9.27	15.9	17.6
10	24.8	42.3	25.4	13.1	16.1	37.0	49.3	16.1	24.7	30.8
12	39.8	67.5	38.1	21.7	25.0	53.7	71.3	25.0	36.1	47.6
14	57.5	91.6	56.7	27.9	33.6	69.6	91.6	46.7	58.1	69.6
16	82.6	132	74.3	38.6	43.9	91.6	121	60.8	75.7	91.6
18	119	194	94.2	48.9	55.7	116	153	77.5	96.9	136
20	161	264	116	68.9	79.6	143	188	96.0	143	188
22	—	—	141	83.3	96.5	173	229	115	173	229
24	265	434	168	114	132	206	274	138	206	309
26	—	—	198	—	—	—	—	—	322	—
28	365	—	230	—	—	—	—	—	369	—
30	—	—	264	—	—	—	—	270	423	536
32	461	—	301	—	—	—	—	—	466	—
34	—	—	340	—	—	—	—	—	528	—
36	585	—	380	—	—	—	—	—	590	—
38	—	—	425	—	—	—	—	—	—	—
40	726	—	471	—	—	—	—	—	—	—
42	—	—	518	—	—	—	—	—	—	—
44	—	—	570	—	—	—	—	—	—	—
46	—	—	623	—	—	—	—	—	—	—
48	1048	—	677	—	—	—	—	—	—	—

NPS	STD	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
1/2	0.08	0.08	—	0.10	0.10	—	—	—	—	—
3/4	0.11	0.11	—	0.14	0.14	—	—	—	—	—
1	0.16	0.16	—	0.19	0.19	—	—	—	0.25	0.33
1 1/4	0.25	0.25	—	0.35	0.35	—	—	—	0.43	0.58
1 1/2	0.37	0.37	—	0.49	0.49	—	—	—	0.66	0.87
2	0.66	0.66	—	0.87	0.87	—	—	—	1.32	1.67
2 1/2	1.32	1.32	—	1.77	1.77	—	—	—	2.29	3.08
3	2.02	2.02	—	2.81	2.81	—	—	—	3.88	5.02
3 1/2	2.91	2.91	—	3.96	3.96	—	—	—	—	7.22
4	3.88	3.88	—	5.45	5.45	—	6.87	—	8.19	9.68
5	6.62	6.62	—	9.68	9.68	—	12.3	—	15.0	17.6
6	10.6	10.6	—	15.9	15.9	—	19.4	—	24.7	29.1
8	20.3	20.3	25.6	31.7	31.7	37.0	44.0	48.4	53.7	52.9
10	37.0	37.0	49.3	49.3	58.1	69.6	81.0	94.3	105	101
12	53.7	58.1	80.1	71.3	96.6	117	137	153	175	142
14	69.6	71.3	108	91.6	136	163	182	212	240	—
16	91.6	121	157	121	198	238	278	329	357	—
18	116	172	225	153	279	337	380	438	484	—
20	143	223	302	188	380	453	532	618	678	—
22	173	—	430	229	500	—	—	—	—	—
24	206	373	518	274	674	771	877	1008	1119	—
26	242	—	—	322	—	—	—	—	—	—
28	275	—	—	369	—	—	—	—	—	—
30	324	—	—	423	—	—	—	—	—	—
32	349	634	—	466	—	—	—	—	—	—
34	396	716	—	528	—	—	—	—	—	—
36	442	877	—	590	—	—	—	—	—	—
38	495	—	—	658	—	—	—	—	—	—
40	547	—	—	729	—	—	—	—	—	—
42	603	—	—	803	—	—	—	—	—	—
44	663	—	—	885	—	—	—	—	—	—
46	726	—	—	966	—	—	—	—	—	—
48	790	—	—	1015	—	—	—	—	—	—

Note :weight of stainless steel fittings must be add 5%.

## Approximate Weights of Buttwelding Fittings - LR45 Elbows

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NPS	DIN S3 3D	DIN S3 5D	SGP/LG	Sch5/5s	Sch10s	Sch40s	Sch80s	Sch10	Sch20	Sch30
1/2	0.02	0.04	0.04	0.03	0.03	0.04	0.05	0.03	—	0.03
3/4	0.04	0.07	0.05	0.04	0.04	0.06	0.07	0.04	—	0.04
1	0.06	0.12	0.08	0.04	0.07	0.08	0.10	0.07	—	0.07
1 1/4	0.10	0.19	0.13	0.06	0.10	0.13	0.18	0.10	—	0.11
1 1/2	0.13	0.25	0.18	0.09	0.14	0.19	0.25	0.14	—	0.16
2	0.25	0.44	0.32	0.15	0.24	0.34	0.45	0.24	—	0.28
2 1/2	0.39	0.72	0.60	0.28	0.40	0.68	0.91	0.40	—	0.63
3	0.61	1.09	0.79	0.41	0.58	1.04	1.45	0.58	—	0.90
3 1/2	—	—	1.06	0.54	0.77	1.50	2.04	0.77	—	1.25
4	1.18	2.09	1.46	0.70	1.00	2.00	2.81	1.00	—	1.58
5	2.01	3.47	2.25	1.42	1.73	3.41	4.99	1.73	—	—
6	3.27	5.55	3.55	2.03	2.48	5.45	8.17	2.48	—	—
8	7.90	13.3	7.20	3.54	4.78	10.4	16.3	4.78	8.17	9.08
10	12.4	21.2	12.7	6.75	8.30	19.1	25.4	8.30	12.7	15.9
12	19.9	33.8	19.0	11.2	12.9	27.7	36.8	12.9	18.6	24.5
14	28.8	45.8	28.4	14.4	17.3	35.9	47.2	24.1	30.0	35.9
16	41.3	66.0	37.2	19.9	22.7	47.2	62.2	31.3	39.0	47.2
18	59.5	97.0	47.1	25.2	28.7	59.9	79.0	40.0	49.9	69.9
20	80.5	132	58.3	35.5	41.1	73.6	97.2	49.5	73.6	97.2
22	—	—	70.5	43.0	49.8	89.0	118	59.5	89.0	118
24	133	217	84.1	59.0	68.0	106	141	73.1	106	159
26	—	—	99.0	—	—	—	—	—	166	—
28	183	—	115	—	—	—	—	—	190	—
30	—	—	132	—	—	—	—	139	218	276
32	231	—	150	—	—	—	—	—	240	—
34	—	—	170	—	—	—	—	—	272	—
36	293	—	190	—	—	—	—	—	304	—
38	—	—	212	—	—	—	—	—	—	—
40	363	—	235	—	—	—	—	—	—	—
42	—	—	259	—	—	—	—	—	—	—
44	—	—	285	—	—	—	—	—	—	—
46	—	—	312	—	—	—	—	—	—	—
48	524	—	339	—	—	—	—	—	—	—

NPS	STD	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
1/2	0.04	0.04	—	0.05	0.05	—	—	—	—	—
3/4	0.06	0.06	—	0.07	0.07	—	—	—	—	—
1	0.08	0.08	—	0.10	0.10	—	—	—	0.13	0.17
1 1/4	0.13	0.13	—	0.18	0.18	—	—	—	0.22	0.30
1 1/2	0.19	0.19	—	0.25	0.25	—	—	—	0.34	0.45
2	0.34	0.34	—	0.45	0.45	—	—	—	0.68	0.86
2 1/2	0.68	0.68	—	0.91	0.91	—	—	—	1.18	1.59
3	1.04	1.04	—	1.45	1.45	—	—	—	2.00	2.59
3 1/2	1.50	1.50	—	2.04	2.04	—	—	—	—	3.72
4	2.00	2.00	—	2.81	2.81	—	3.54	—	4.22	4.99
5	3.41	3.41	—	4.99	4.99	—	6.36	—	7.72	9.08
6	5.45	5.45	—	8.17	8.17	—	9.99	—	12.7	15.0
8	10.4	10.4	13.2	16.3	16.3	19.1	22.7	25.0	27.7	27.2
10	19.1	19.1	25.4	25.4	30.0	35.9	41.8	48.6	54.0	52.2
12	27.7	30.0	41.3	36.8	49.9	60.4	70.8	79.0	90.4	73.1
14	35.9	36.8	55.8	47.2	69.9	84.0	94.0	109	124	—
16	47.2	62.2	80.8	62.2	102	123	143	169	184	—
18	59.9	88.5	116	79.0	144	174	196	226	250	—
20	73.6	115	156	97.2	196	233	274	319	350	—
22	89.0	—	222	118	258	—	—	—	—	—
24	106	192	267	141	334	397	452	520	577	—
26	125	—	—	166	—	—	—	—	—	—
28	142	—	—	190	—	—	—	—	—	—
30	167	—	—	218	—	—	—	—	—	—
32	180	327	—	240	—	—	—	—	—	—
34	204	369	—	272	—	—	—	—	—	—
36	228	452	—	304	—	—	—	—	—	—
38	255	—	—	339	—	—	—	—	—	—
40	282	—	—	376	—	—	—	—	—	—
42	311	—	—	414	—	—	—	—	—	—
44	342	—	—	456	—	—	—	—	—	—
46	374	—	—	498	—	—	—	—	—	—
48	407	—	—	542	—	—	—	—	—	—

Note :weight of stainless steel fittings must be add 5%.

## Approximate Weights of Buttwelding Fittings - LR180 Elbows

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NPS	DIN S3 3D	DIN S3 5D	SGP/LG	Sch5/5s	Sch10s	Sch40s	Sch80s	Sch10	Sch20	Sch30
1/2	0.08	0.14	0.16	0.12	0.12	0.16	0.21	0.12	—	0.12
3/4	0.14	0.27	0.21	0.14	0.14	0.23	0.29	0.14	—	0.14
1	0.25	0.47	0.31	0.16	0.29	0.33	0.39	0.29	—	0.29
1 1/4	0.39	0.76	0.54	0.25	0.39	0.52	0.72	0.39	—	0.43
1 1/2	0.54	1.03	0.72	0.35	0.56	0.76	1.01	0.56	—	0.64
2	1.01	1.79	1.32	0.60	0.97	1.36	1.79	0.97	—	1.11
2 1/2	1.61	2.97	2.31	1.11	1.61	2.72	3.65	1.61	—	2.51
3	2.51	4.49	3.25	1.65	2.33	4.16	5.79	2.33	—	3.61
3 1/2	—	—	4.35	2.16	3.07	5.99	8.16	3.07	—	5.01
4	4.86	8.59	5.99	2.80	4.00	7.99	11.2	4.00	—	6.32
5	8.26	14.3	9.25	5.67	6.92	13.6	19.9	6.92	—	—
6	13.5	22.9	14.6	8.12	9.91	21.8	32.7	9.91	—	—
8	32.60	54.6	29.70	14.2	19.1	41.7	65.3	19.1	32.7	36.3
10	51.1	87.1	52.3	27.0	33.2	76.2	102	33.2	50.8	63.5
12	82.0	139	78.5	44.8	51.6	111	147	51.6	74.4	98.0
14	118	189	117	57.6	69.1	143	189	96.2	120	143
16	170	272	153	79.5	90.5	189	249	125	156	189
18	245	400	194	101	115	240	316	160	200	279
20	332	544	239	142	164	294	388	198	294	388
22	—	—	290	172	199	356	472	238	356	472
24	546	894	346	236	272	425	564	285	425	637
26	—	—	408	—	—	—	—	—	663	—
28	752	—	474	—	—	—	—	—	759	—
30	—	—	544	—	—	—	—	555	871	1103
32	950	—	620	—	—	—	—	—	959	—
34	—	—	700	—	—	—	—	—	1087	—
36	1205	—	783	—	—	—	—	—	1215	—
38	—	—	876	—	—	—	—	—	—	—
40	1496	—	970	—	—	—	—	—	—	—
42	—	—	1067	—	—	—	—	—	—	—
44	—	—	1174	—	—	—	—	—	—	—
46	—	—	1283	—	—	—	—	—	—	—
48	2159	—	1395	—	—	—	—	—	—	—

NPS	STD	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
1/2	0.16	0.16	—	0.21	0.21	—	—	—	—	—
3/4	0.23	0.23	—	0.29	0.29	—	—	—	—	—
1	0.33	0.33	—	0.39	0.39	—	—	—	0.52	0.68
1 1/4	0.52	0.52	—	0.72	0.72	—	—	—	0.89	1.19
1 1/2	0.76	0.76	—	1.01	1.01	—	—	—	1.36	1.79
2	1.36	1.36	—	1.79	1.79	—	—	—	2.72	3.44
2 1/2	2.72	2.72	—	3.65	3.65	—	—	—	4.72	6.34
3	4.16	4.16	—	5.79	5.79	—	—	—	7.99	10.3
3 1/2	5.99	5.99	—	8.16	8.16	—	—	—	—	14.9
4	7.99	7.99	—	11.2	11.2	—	14.2	—	16.9	19.9
5	13.6	13.6	—	19.9	19.9	—	25.4	—	30.9	36.3
6	21.8	21.8	—	32.7	32.7	—	39.9	—	50.8	59.9
8	41.7	41.7	52.6	65.3	65.3	76.2	90.7	99.8	111	109
10	76.2	76.2	102	102	120.0	143	167	194	216	209
12	111	120	165	147	200	241	283	316	361	292
14	143	147	223	189	279	336	376	437	495	—
16	189	249	323	249	408	490	573	677	735	—
18	240	354	463	316	575	695	782	902	998	—
20	294	459	622	388	782	933	1096	1274	1397	—
22	356	—	886	472	1030	—	—	—	—	—
24	425	767	1067	564	1334	1588	1807	2077	2034	—
26	499	—	—	663	—	—	—	—	—	—
28	567	—	—	759	—	—	—	—	—	—
30	667	—	—	871	—	—	—	—	—	—
32	719	1307	—	959	—	—	—	—	—	—
34	815	1475	—	1087	—	—	—	—	—	—
36	911	1806	—	1215	—	—	—	—	—	—
38	1019	—	—	1355	—	—	—	—	—	—
40	1127	—	—	1503	—	—	—	—	—	—
42	1243	—	—	1655	—	—	—	—	—	—
44	1367	—	—	1822	—	—	—	—	—	—
46	1495	—	—	1990	—	—	—	—	—	—
48	1627	—	—	2166	—	—	—	—	—	—

Note :weight of stainless steel fittings must be add 5%.

## Approximate Weights of Buttwelding Fittings - SR90 Elbows

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NPS	SGP/LG	Sch5/5s	Sch10s	Sch40s	Sch80s	Sch10	Sch20	Sch30	STD
1/2	—	0.04	0.04	0.05	0.07	0.04	—	0.04	0.05
3/4	—	0.05	0.05	0.07	0.09	0.05	—	0.05	0.07
1	0.10	0.05	0.09	0.11	1.13	0.09	—	0.09	0.11
1 1/4	0.17	0.08	0.13	0.17	0.23	0.13	—	0.14	0.17
1 1/2	0.24	0.11	0.18	0.25	0.33	0.18	—	0.21	0.25
2	0.43	0.19	0.31	0.44	0.58	0.31	—	0.36	0.44
2 1/2	0.75	0.36	0.52	0.88	1.18	0.52	—	0.81	0.88
3	1.05	0.53	0.75	1.35	1.87	0.75	—	1.17	1.35
3 1/2	1.41	0.70	0.99	1.94	2.64	0.99	—	1.62	1.94
4	1.94	0.91	1.29	2.59	3.63	1.29	—	2.05	2.59
5	2.99	1.83	2.24	4.41	6.45	2.24	—	—	4.41
6	4.73	2.63	3.21	7.05	10.6	3.21	—	—	7.05
8	9.61	4.58	6.18	13.5	21.1	6.18	10.6	11.8	13.5
10	16.9	8.73	10.7	24.7	32.90	10.7	16.4	20.6	24.7
12	25.4	14.5	16.7	35.8	47.6	16.7	24.1	31.7	35.8
14	37.8	18.6	22.4	46.4	61.1	31.1	38.8	46.4	46.4
16	49.5	25.7	29.3	61.1	80.5	40.5	50.5	61.1	61.1
18	62.8	32.6	37.1	77.5	102	51.7	64.6	90.4	77.5
20	77.7	45.9	53.1	95.1	126	64.0	95.1	126	95.1
22	94.1	55.6	64.4	115	153	76.9	115	153	115
24	112	76.3	88.0	137	183	92.3	137	206	137
26	132	—	—	—	—	—	215	—	161
28	154	—	—	—	—	—	246	—	184
30	176	—	—	—	—	180	282	357	216
32	201	—	—	—	—	—	310	—	233
34	227	—	—	—	—	—	352	—	264
36	253	—	—	—	—	—	393	—	295
38	283	—	—	—	—	—	—	—	330
40	314	—	—	—	—	—	—	—	365
42	346	—	—	—	—	—	—	—	402
44	380	—	—	—	—	—	—	—	442
46	415	—	—	—	—	—	—	—	484
48	452	—	—	—	—	—	—	—	526

NPS	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
1/2	0.05	—	0.07	0.07	—	—	—	—	—
3/4	0.07	—	0.09	0.09	—	—	—	—	—
1	0.11	—	0.13	13.00	—	—	—	0.17	0.22
1 1/4	0.17	—	0.23	0.23	—	—	—	0.29	0.39
1 1/2	0.25	—	0.33	0.33	—	—	—	0.44	0.58
2	0.44	—	0.58	0.58	—	—	—	0.88	1.11
2 1/2	0.88	—	1.18	1.18	—	—	—	1.53	2.05
3	1.35	—	1.87	1.87	—	—	—	2.59	3.35
3 1/2	1.94	—	2.64	2.64	—	—	—	—	4.81
4	2.59	—	3.63	3.63	—	4.58	—	5.46	6.45
5	4.41	—	6.45	6.45	—	8.23	—	9.99	11.8
6	7.05	—	10.6	10.6	—	12.9	—	16.4	19.4
8	13.5	17.0	21.1	21.1	24.7	29.4	32.3	35.8	35.2
10	24.7	32.9	32.9	38.8	46.4	54.0	62.8	69.9	67.5
12	38.8	53.4	47.6	64.6	78.1	91.6	102	117	94.5
14	47.6	72.2	61.1	90.4	109	122	142	160	—
16	80.5	105	80.5	132	159	186	219	238	—
18	115	150	102	186	225	253	292	323	—
20	149	201	126	253	302	355	412	452	—
22	—	287	153	333	—	—	—	—	—
24	248	345	183	432	514	585	672	746	—
26	—	—	215	—	—	—	—	—	—
28	—	—	246	—	—	—	—	—	—
30	—	—	282	—	—	—	—	—	—
32	423	—	310	—	—	—	—	—	—
34	477	—	352	—	—	—	—	—	—
36	585	—	393	—	—	—	—	—	—
38	—	—	438	—	—	—	—	—	—
40	—	—	486	—	—	—	—	—	—
42	—	—	535	—	—	—	—	—	—
44	—	—	590	—	—	—	—	—	—
46	—	—	644	—	—	—	—	—	—
48	—	—	701	—	—	—	—	—	—

Note :weight of stainless steel fittings must be add 5%.

## Approximate Weights of Buttwelding Fittings - SR45 Elbows

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NPS	SGP/LG	Sch5/5s	Sch10s	Sch40s	Sch80s	Sch10	Sch20	Sch30	STD
1/2	—	0.02	0.02	0.03	0.03	0.02	—	0.02	0.03
3/4	—	0.03	0.03	0.04	0.05	0.03	—	0.03	0.04
1	0.05	0.03	0.05	0.05	0.07	0.05	—	0.05	0.05
1 1/4	0.09	0.04	0.07	0.09	0.12	0.07	—	0.07	0.09
1 1/2	0.12	0.06	0.09	0.13	0.17	0.09	—	0.11	0.13
2	0.22	0.10	0.16	0.23	0.30	0.16	—	0.19	0.23
2 1/2	0.38	0.19	0.27	0.45	0.61	0.27	—	0.42	0.45
3	0.53	0.27	0.39	0.69	0.97	0.39	—	0.60	0.69
3 1/2	0.71	0.36	0.51	1.00	1.36	0.51	—	0.83	1.00
4	0.97	0.47	0.67	1.33	1.87	0.67	—	1.05	1.33
5	1.50	0.95	1.15	2.27	3.33	1.15	—	—	2.27
6	2.37	1.35	1.65	3.63	5.45	1.65	—	—	3.63
8	4.81	2.36	3.19	6.96	10.9	3.19	5.45	6.05	6.96
10	8.45	4.50	5.53	12.7	17.0	5.53	8.47	10.6	12.7
12	12.7	7.47	8.60	18.5	24.5	8.60	12.4	16.4	18.5
14	18.9	9.60	11.5	23.9	31.5	16.0	20.0	23.9	23.9
16	24.8	13.3	15.1	31.5	41.5	20.9	26.0	31.5	31.5
18	31.4	16.8	19.1	40.0	52.7	26.6	33.3	46.6	40.0
20	38.9	23.7	27.4	49.0	64.8	33.0	49.0	64.8	49.0
22	47.1	28.6	33.2	59.3	78.7	39.7	59.3	78.7	59.3
24	56.0	39.3	45.3	70.8	94.1	47.5	70.8	106	71
26	66.0	—	—	—	—	—	111	—	83
28	77.0	—	—	—	—	—	127	—	95
30	88.0	—	—	—	—	92.6	145	184	111
32	101	—	—	—	—	—	160	—	120
34	114	—	—	—	—	—	181	—	136
36	127	—	—	—	—	—	203	—	152
38	142	—	—	—	—	—	—	—	170
40	157	—	—	—	—	—	—	—	188
42	173	—	—	—	—	—	—	—	207
44	190	—	—	—	—	—	—	—	228
46	208	—	—	—	—	—	—	—	249
48	226	—	—	—	—	—	—	—	271

NPS	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
1/2	0.03	—	0.03	0.03	—	—	—	—	—
3/4	0.04	—	0.05	0.05	—	—	—	—	—
1	0.05	—	0.07	0.07	—	—	—	0.09	0.11
1 1/4	0.09	—	0.12	0.12	—	—	—	0.15	0.20
1 1/2	0.13	—	0.17	0.17	—	—	—	0.23	0.30
2	0.23	—	0.30	0.30	—	—	—	0.45	0.57
2 1/2	0.45	—	0.61	0.61	—	—	—	0.79	1.06
3	0.69	—	0.97	0.97	—	—	—	1.33	1.73
3 1/2	1.00	—	1.36	1.36	—	—	—	—	2.48
4	1.33	—	1.87	1.87	—	2.36	—	2.81	3.33
5	2.27	—	3.33	3.33	—	4.24	—	5.15	6.05
6	3.63	—	5.45	5.45	—	6.66	—	8.47	10.0
8	6.96	8.78	10.9	10.9	12.7	15.1	16.7	18.5	18.2
10	12.7	17.0	17.0	20.0	23.9	27.9	32.4	36.0	34.8
12	20.0	27.5	24.5	33.3	40.3	47.2	52.7	60.2	48.7
14	24.5	37.2	31.5	46.6	56.0	62.7	72.9	82.6	—
16	41.5	53.9	41.5	68.1	81.7	95.6	113	123	—
18	59.0	77.2	52.7	96.0	116	130	150	166	—
20	76.6	104	64.8	130	156	183	212	233	—
22	—	148	78.7	172	—	—	—	—	—
24	128	178	94.1	222	265	301	347	384	—
26	—	—	111	—	—	—	—	—	—
28	—	—	127	—	—	—	—	—	—
30	—	—	145	—	—	—	—	—	—
32	218	—	160	—	—	—	—	—	—
34	246	—	181	—	—	—	—	—	—
36	301	—	203	—	—	—	—	—	—
38	—	—	226	—	—	—	—	—	—
40	—	—	251	—	—	—	—	—	—
42	—	—	276	—	—	—	—	—	—
44	—	—	304	—	—	—	—	—	—
46	—	—	332	—	—	—	—	—	—
48	—	—	361	—	—	—	—	—	—

Note :weight of stainless steel fittings must be add 5%.



## Approximate Weights of Buttwelding Fittings - SR180 Elbows

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NPS	SGP/LG	Sch5/5s	Sch10s	Sch40s	Sch80s	Sch10	Sch20	Sch30	STD
1/2	—	0.08	0.08	0.11	0.14	0.08	—	0.08	0.11
3/4	—	0.09	0.09	0.25	0.19	0.09	—	0.09	0.15
1	0.21	0.11	0.19	0.22	0.26	0.19	—	0.19	0.22
1 1/4	0.35	0.17	0.26	0.35	0.48	0.26	—	0.29	0.35
1 1/2	0.49	0.23	0.37	0.51	0.67	0.37	—	0.43	0.51
2	0.89	0.40	0.65	0.91	1.19	0.65	—	0.74	0.91
2 1/2	1.55	0.74	1.07	1.81	2.43	1.07	—	1.67	1.81
3	2.16	1.10	1.55	2.77	3.86	1.55	—	2.41	2.77
3 1/2	2.90	1.44	2.05	3.99	5.44	2.05	—	3.34	3.99
4	4.00	1.87	2.67	5.33	7.49	2.67	—	4.21	5.33
5	6.16	3.78	4.61	9.09	13.3	4.61	—	—	9.09
6	9.74	5.41	6.61	14.5	21.8	6.61	—	—	14.5
8	19.8	9.43	12.7	27.8	43.5	12.7	21.8	24.2	27.8
10	34.8	18.0	22.1	50.8	67.7	22.1	33.9	42.3	50.8
12	52.3	29.8	34.4	73.8	98.0	34.4	49.6	65.3	73.8
14	77.9	38.40	46.1	95.6	126	64.1	79.8	95.6	95.6
16	102	53.0	60.4	126	166	83.5	104	126	126
18	129	67.1	76.5	160	210	106	133	186	160
20	160	94.6	109	196	259	132	196	259	196
22	194	114	133	237	314	158	237	314	237
24	231	157	181	283	376	190	283	425	283
26	272	—	—	—	—	—	442	—	333
28	317	—	—	—	—	—	506	—	378
30	363	—	—	—	—	370	581	735	445
32	414	—	—	—	—	—	639	—	480
34	468	—	—	—	—	—	725	—	544
36	521	—	—	—	—	—	810	—	607
38	583	—	—	—	—	—	—	—	679
40	647	—	—	—	—	—	—	—	751
42	713	—	—	—	—	—	—	—	829
44	783	—	—	—	—	—	—	—	911
46	855	—	—	—	—	—	—	—	996
48	931	—	—	—	—	—	—	—	1084

NPS	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
1/2	0.11	—	0.14	0.14	—	—	—	—	—
3/4	0.15	—	0.19	0.19	—	—	—	—	—
1	0.22	—	0.26	0.26	—	—	—	0.35	0.45
1 1/4	0.35	—	0.48	0.48	—	—	—	0.59	0.79
1 1/2	0.51	—	0.67	0.67	—	—	—	0.91	1.19
2	0.91	—	1.19	1.19	—	—	—	1.81	2.29
2 1/2	1.81	—	2.43	2.43	—	—	—	3.15	4.23
3	2.77	—	3.86	3.86	—	—	—	5.33	6.89
3 1/2	3.99	—	5.44	5.44	—	—	—	—	9.91
4	5.33	—	7.49	7.49	—	9.43	—	11.3	13.3
5	9.09	—	13.3	13.3	—	17.0	—	20.6	24.2
6	14.5	—	21.8	21.8	—	26.6	—	33.9	39.9
8	27.8	35.1	43.5	43.5	50.8	60.5	66.5	73.8	72.6
10	50.8	67.7	67.7	79.8	95.6	111	129	144	139
12	79.8	110	98.0	133	161	189	210	241	195
14	98.0	149	126	186	224	250	292	330	—
16	166	215	166	272	327	382	451	490	—
18	236	308	210	383	463	521	601	665	—
20	306	415	259	521	622	731	849	931	—
22	—	591	314	687	—	—	—	—	—
24	512	711	376	889	1058	1205	1385	1536	—
26	—	—	442	—	—	—	—	—	—
28	—	—	506	—	—	—	—	—	—
30	—	—	581	—	—	—	—	—	—
32	871	—	639	—	—	—	—	—	—
34	983	—	725	—	—	—	—	—	—
36	1204	—	810	—	—	—	—	—	—
38	—	—	903	—	—	—	—	—	—
40	—	—	1002	—	—	—	—	—	—
42	—	—	1103	—	—	—	—	—	—
44	—	—	1215	—	—	—	—	—	—
46	—	—	1327	—	—	—	—	—	—
48	—	—	1444	—	—	—	—	—	—

Note :weight of stainless steel fittings must be add 5%.

## Approximate Weights of Buttwelding Fittings - Straight Tees

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NPS	DIN S3	SGP/LG	Sch5s	Sch10s	Sch40s	Sch80s	Sch5	Sch10	Sch20	Sch30
1/2	0.09	0.09	0.11	0.13	0.16	0.22	0.11	0.13	—	0.14
3/4	0.15	0.13	0.13	0.16	0.20	0.27	0.13	0.16	—	0.17
1	0.29	0.24	0.18	0.31	0.34	0.46	0.18	0.31	—	0.29
1 1/4	0.42	0.42	0.30	0.51	0.59	0.80	0.30	0.51	—	0.49
1 1/2	0.60	0.58	0.45	0.76	0.91	1.26	0.45	0.76	—	0.78
2	0.83	0.86	0.73	1.24	1.59	2.26	0.73	1.24	—	1.29
2 1/2	1.25	1.42	1.22	1.77	2.72	3.70	1.22	1.77	—	2.53
3	1.85	1.87	1.34	1.94	3.18	4.42	1.34	1.94	—	2.77
3 1/2	—	2.37	1.64	2.37	4.09	5.77	1.64	2.37	—	3.39
4	3.10	3.13	2.13	3.05	5.45	7.74	2.13	3.05	—	4.31
5	4.80	4.53	4.48	5.43	9.53	13.8	4.48	5.43	—	—
6	7.00	6.84	6.64	8.18	15.4	23.8	6.64	8.18	—	—
8	14.9	12.8	9.24	12.7	25.0	38.7	9.24	12.7	21.2	23.7
10	22.0	21.8	15.4	19.3	38.6	52.9	15.4	19.3	28.9	35.9
12	35.0	32.0	25.1	28.9	54.5	72.5	25.1	28.9	39.8	52.8
14	60.0	44.7	34.5	41.2	74.9	99.6	34.5	54.7	68.2	74.9
16	82.0	55.2	42.5	48.7	88.5	117.7	42.5	64.6	80.6	88.5
18	131	70.0	54.3	62.2	113	150	54.3	83.0	103	132
20	160	86.6	85.4	99.4	155	207	85.4	113	155	207
22	—	106	103	120	188	250	103	137	188	250
24	242	116	153	175	240	319	153	175	240	360
26	—	147	—	—	—	—	—	290	465	—
28	394	165	—	—	—	—	—	330	529	665
30	—	190	351	438	481	640	351	399	640	804
32	517	217	—	—	—	—	—	434	695	873
34	—	246	—	—	—	—	—	491	786	987
36	670	276	—	—	—	—	—	561	900	1130
38	—	308	—	—	—	—	—	—	—	—
40	1018	342	—	—	—	—	—	—	—	—
42	—	352	—	—	—	—	—	—	—	—
44	—	396	—	—	—	—	—	—	—	—
46	—	434	—	—	—	—	—	—	—	—
48	1445	474	—	—	—	—	—	—	—	—

NPS	STD	Sch40	Sch60	XS	Sch80	Sch100	Sch120	Sch140	Sch160	XXS
1/2	0.16	0.16	—	0.22	0.22	—	—	—	0.28	0.40
3/4	0.20	0.20	—	0.27	0.27	—	—	—	0.39	0.51
1	0.34	0.34	—	0.46	0.46	—	—	—	0.64	0.85
1 1/4	0.59	0.59	—	0.80	0.80	—	—	—	1.05	1.49
1 1/2	0.91	0.91	—	1.26	1.26	—	—	—	1.77	2.34
2	1.59	1.59	—	2.26	2.26	—	—	—	3.31	4.18
2 1/2	2.72	2.72	—	3.70	3.70	—	—	—	5.03	6.88
3	3.18	3.18	—	4.42	4.42	—	—	—	6.01	8.20
3 1/2	4.09	4.09	—	5.77	5.77	—	—	—	—	—
4	5.45	5.45	—	7.74	7.74	—	10.1	—	11.3	14.4
5	9.53	9.53	—	13.8	13.8	—	18.5	—	21.4	25.7
6	15.4	15.4	—	23.8	23.8	—	28.9	—	36.9	44.3
8	25.0	25.0	31.5	38.7	38.7	45.9	51.9	58.4	65.4	63.2
10	38.6	38.6	52.9	52.9	62.9	76.0	83.0	98.4	107	98.4
12	54.5	58.8	81.7	72.5	99.7	114	135	147	172	135
14	74.9	87.6	118	99.6	139	175	203	225	252	—
16	88.5	118	155	118	185	227	259	305	338	—
18	113	170	210	150	263	313	373	424	483	—
20	155	245	312	207	397	477	559	652	733	—
22	188	—	408	250	524	620	733	846	959	—
24	240	439	575	319	724	880	1043	1187	1347	—
26	350	—	—	465	—	—	—	—	—	—
28	398	—	—	529	—	—	—	—	—	—
30	481	—	—	640	—	—	—	—	—	—
32	523	956	—	695	—	—	—	—	—	—
34	591	1082	—	786	—	—	—	—	—	—
36	676	1353	—	900	—	—	—	—	—	—
38	926	—	—	1232	—	—	—	—	—	—
40	1028	—	—	1367	—	—	—	—	—	—
42	1317	—	—	1752	—	—	—	—	—	—
44	1357	—	—	1805	—	—	—	—	—	—
46	1410	—	—	1857	—	—	—	—	—	—
48	1460	—	—	1942	—	—	—	—	—	—

Note :weight of stainless steel fittings must be add 5%.