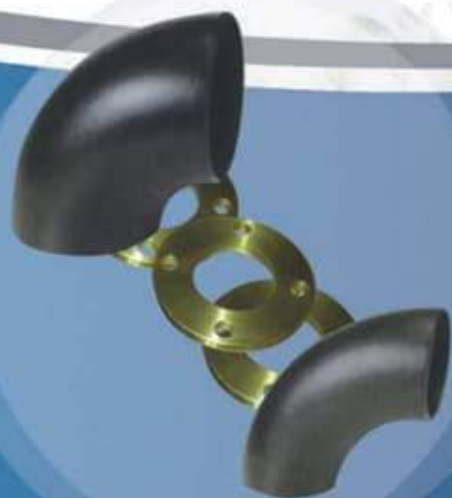


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CTY XNK HUY PHÁT
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CANGZHOU
HUAYE

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HUAYE **HY**
CANGZHOU HUAYE
METAL PRODUCTS
CO.,LTD.



CANGZHOU HUAYE METAL PRODUCTS CO.,LTD.

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CANGZHOU HUAYE → **0909651167**
PRODUCTS SERIES



CANGZHOU HUAYE

METAL PRODUCTS CO.,LTD.

CTY XNK HUY PHÁT
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Wall Thickness Schedules(ASME)

ASME B36.10 ASME B36.19

Nominal Pipe Size(NPS)		Outside Diameter		Nominal Wall Thickness									
				Sch5s		Sch10s		Sch40s		Sch80s		Sch5	
A	B	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
8	1/4	13.7	0.540	-	-	1.65	0.065	2.24	0.088	3.02	0.119	-	-
10	3/8	17.1	0.675	-	-	1.65	0.065	2.31	0.091	3.20	0.126	-	-
15	1/2	21.3	0.840	1.65	0.065	2.11	0.083	2.77	0.109	3.73	0.147	1.65	0.065
20	3/4	26.7	1.05	1.65	0.065	2.11	0.083	2.87	0.113	3.91	0.154	1.65	0.065
25	1	33.4	1.32	1.65	0.065	2.77	0.109	3.38	0.133	4.55	0.179	1.65	0.065
32	1 1/8	42.2	1.66	1.65	0.065	2.77	0.109	3.56	0.140	4.85	0.191	1.65	0.065
40	1 1/2	48.3	1.9	1.65	0.065	2.77	0.109	3.68	0.145	5.08	0.200	1.65	0.065
50	2	60.3	2.38	1.65	0.065	2.77	0.109	3.91	0.154	5.54	0.218	1.65	0.065
65	2 1/2	73.0	2.88	2.11	0.083	3.05	0.120	5.16	0.203	7.01	0.276	2.11	0.083
80	3	88.9	3.5	2.11	0.083	3.05	0.120	5.49	0.216	7.62	0.300	2.11	0.083
90	3 1/2	101.6	4	2.11	0.083	3.05	0.120	5.74	0.226	8.08	0.318	2.11	0.083
100	4	114.3	4.5	2.11	0.083	3.05	0.120	6.02	0.237	8.56	0.337	2.11	0.083
125	5	141.3	5.56	2.77	0.109	3.40	0.134	6.55	0.258	9.53	0.375	2.77	0.109
150	6	168.3	6.62	2.77	0.109	3.40	0.134	7.11	0.280	10.97	0.432	2.77	0.109
200	8	219.1	8.62	2.77	0.109	3.76	0.148	8.18	0.322	12.70	0.500	2.77	0.109
250	10	273.0	10.75	3.40	0.134	4.19	0.165	9.27	0.365	12.70	0.500	3.40	0.134
300	12	323.8	12.75	3.96	0.156	4.57	0.180	9.53	0.375	12.70	0.500	3.96	0.156
350	14	355.6	14	3.96	0.156	4.78	0.188	9.53	0.375	12.70	0.500	3.96	0.156
400	16	406.4	16	4.19	0.165	4.78	0.188	9.53	0.375	12.70	0.500	4.19	0.165
450	18	457	18	4.19	0.165	4.78	0.188	9.53	0.375	12.70	0.500	4.19	0.165
500	20	508	20	4.78	0.188	5.54	0.218	9.53	0.375	12.70	0.500	4.78	0.188
550	22	559	22	4.78	0.188	5.54	0.218	9.53	0.375	12.70	0.500	4.78	0.188
600	24	610	24	5.54	0.218	6.35	0.250	9.53	0.375	12.70	0.500	5.54	0.218
650	26	660	26	-	-	-	-	-	-	-	-	-	-
700	28	711	28	-	-	-	-	-	-	-	-	-	-
750	30	762	30	6.35	0.250	7.92	0.312	9.53	0.375	12.70	0.500	6.35	0.250
800	32	813	32	-	-	-	-	-	-	-	-	-	-
850	34	864	34	-	-	-	-	-	-	-	-	-	-
900	36	914	36	-	-	-	-	-	-	-	-	-	-
950	38	965	38	-	-	-	-	-	-	-	-	-	-
1000	40	1016	40	-	-	-	-	-	-	-	-	-	-
1050	42	1067	42	-	-	-	-	-	-	-	-	-	-
1100	44	1118	44	-	-	-	-	-	-	-	-	-	-
1150	46	1168	46	-	-	-	-	-	-	-	-	-	-
1200	48	1219	48	-	-	-	-	-	-	-	-	-	-

Nominal Pipe Size(NPS)		Outside Diameter		Nominal wall Thickness									
				Sch10		Sch20		Sch30		STD		Sch40	
A	B	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN
8	1/4	13.7	0.540	1.65	0.065	-	-	1.85	0.073	2.24	0.088	2.24	0.088
10	3/8	17.1	0.675	1.65	0.065	-	-	1.85	0.073	2.31	0.091	2.31	0.091
15	1/2	21.3	0.840	2.11	0.083	-	-	2.41	0.095	2.77	0.109	2.77	0.109
20	3/4	26.7	1.05	2.11	0.083	2.2	-	2.41	0.095	2.87	0.113	2.87	0.113
25	1	33.4	1.32	2.77	0.109	2.8	-	2.90	0.114	3.38	0.133	3.38	0.133
32	1 1/8	42.2	1.66	2.77	0.109	2.8	-	2.97	0.117	3.56	0.140	3.56	0.140
40	1 1/2	48.3	1.9	2.77	0.109	2.8	-	3.18	0.125	3.68	0.145	3.68	0.145
50	2	60.3	2.38	2.77	0.109	2.9	-	3.18	0.125	3.91	0.154	3.91	0.154
65	2 1/2	73.0	2.88	3.05	0.120	3.5	-	4.78	0.188	5.16	0.203	5.16	0.203
80	3	88.9	3.5	3.05	0.120	4.0	-	4.78	0.188	5.49	0.216	5.49	0.216
90	3 1/2	101.6	4	3.05	0.120	-	-	4.78	0.188	5.74	0.226	5.74	0.226
100	4	114.3	4.5	3.05	0.120	4.0	-	4.78	0.188	6.02	0.237	6.02	0.237
125	5	141.3	5.56	3.40	0.134	-	-	-	-	6.55	0.258	6.55	0.258
150	6	168.3	6.62	3.40	0.134	5.0	-	-	-	7.11	0.280	7.11	0.280
200	8	219.1	8.62	3.76	0.148	6.35	0.250	7.04	0.277	8.18	0.322	8.18	0.322
250	10	273.0	10.75	4.19	0.165	6.35	0.250	7.80	0.307	9.27	0.365	9.27	0.365
300	12	323.8	12.75	4.57	0.180	6.35	0.250	8.38	0.330	9.53	0.375	10.31	0.406
350	14	355.6	14	6.35	0.250	7.92	0.312	9.53	0.375	9.53	0.375	11.13	0.438
400	16	406.4	16	6.35	0.250	7.92	0.312	9.53	0.375	9.53	0.375	12.70	0.500
450	18	457	18	6.35	0.250	7.92	0.312	11.13	0.438	9.53	0.375	14.27	0.562
500	20	508	20	6.35	0.250	9.53	0.375	12.70	0.500	9.53	0.375	15.09	0.594
550	22	559	22	6.35	0.250	9.53	0.375	12.70	0.500	9.53	0.375	-	-
600	24	610	24	6.35	0.250	9.53	0.375	14.27	0.562	9.53	0.375	17.48	0.688
650	26	660	26	7.92	0.312	12.70	0.500	-	-	9.53	0.375	-	-
700	28	711	28	7.92	0.312	12.70	0.500	15.88	0.625	9.53	0.375	-	-
750	30	762	30	7.92	0.312	12.70	0.500	15.88	0.625	9.53	0.375	-	-
800	32	813	32	7.92	0.312	12.70	0.500	15.88	0.625	9.53	0.375	17.48	0.688
850	34	864	34	7.92	0.312	12.70	0.500	15.88	0.625	9.53	0.375	17.48	0.688
900	36	914	36	7.92	0.312	12.70	0.500	15.88	0.625	9.53	0.375	19.05	0.750
950	38	965	38	-	-	-	-	-	-	9.53	0.375	-	-
1000	40	1016	40	-	-	-	-	-	-	9.53	0.375	-	-
1050	42	1067	42	-	-	-	-	-	-	9.53	0.375	-	-
1100	44	1118	44	-	-	-	-	-	-	9.53	0.375	-	-
1150	46	1168	46	-	-	-	-	-	-	9.53	0.375	-	-
1200	48	1219	48	-	-	-	-	-	-	9.53	0.375	-	-

CTY XNK HUY PHÁT

[TECHNICAL DATA] Hotline: 0981643181

0909651167

Wall Thickness Schedules (ASME)

ASME B36.10 ASME B36.19

Nominal pipe size (NPS)		Outside Diameter		Nominal wall Thickness							
A	B			Sch60		XS		Sch80		Sch100	
				MM	IN	MM	IN	MM	IN	MM	IN
8	1/4	13.7	0.540	-	-	3.02	0.119	3.02	0.119	-	-
10	3/8	17.1	0.675	-	-	3.20	0.126	3.20	0.126	-	-
15	1/2	21.3	0.840	-	-	3.73	0.147	3.73	0.147	-	-
20	3/4	26.7	1.05	-	-	3.91	0.154	3.91	0.154	-	-
25	1	33.4	1.32	-	-	4.55	0.179	4.55	0.179	-	-
32	1 1/4	42.2	1.66	-	-	4.85	0.191	4.85	0.191	-	-
40	1 1/2	48.3	1.9	-	-	5.08	0.200	5.08	0.200	-	-
50	2	60.3	2.38	-	-	5.54	0.218	5.54	0.218	-	-
65	2 1/2	73.0	2.88	-	-	7.01	0.276	7.01	0.276	-	-
80	3	88.9	3.5	-	-	7.62	0.300	7.92	0.300	-	-
90	3 1/2	101.6	4	-	-	8.08	0.318	8.08	0.318	-	-
100	4	114.3	4.5	-	-	8.56	0.337	8.56	0.337	-	-
125	5	141.3	5.56	-	-	9.53	0.375	9.53	0.375	-	-
150	6	168.3	6.62	-	-	10.97	0.432	10.97	0.432	-	-
200	8	219.1	8.62	10.31	0.406	12.70	0.500	12.70	0.500	15.09	0.594
250	10	273.0	10.75	12.70	0.500	12.70	0.500	15.09	0.594	18.26	0.719
300	12	323.8	12.75	14.27	0.562	12.70	0.500	17.48	0.688	21.44	0.844
350	14	355.6	14	15.09	0.594	12.70	0.500	19.05	0.750	23.83	0.938
400	16	406.4	16	16.66	0.656	12.70	0.500	21.44	0.844	26.19	1.031
450	18	457	18	19.05	0.750	12.70	0.500	23.83	0.938	29.36	1.156
500	20	508	20	20.62	0.812	12.70	0.500	26.19	1.031	32.54	1.281
550	22	559	22	22.23	0.875	12.70	0.500	28.58	1.125	34.93	1.375
600	24	610	24	24.61	0.969	12.70	0.500	30.96	1.219	38.89	1.531
650	26	660	26	-	-	12.70	0.500	-	-	-	-
700	28	711	28	-	-	12.70	0.500	-	-	-	-
750	30	762	30	-	-	12.70	0.500	-	-	-	-
800	32	813	32	-	-	12.70	0.500	-	-	-	-
850	34	864	34	-	-	12.70	0.500	-	-	-	-
900	36	914	36	-	-	12.70	0.500	-	-	-	-
950	38	965	38	-	-	12.70	0.500	-	-	-	-
1000	40	1016	40	-	-	12.70	0.500	-	-	-	-
1050	42	1067	42	-	-	12.70	0.500	-	-	-	-
1100	44	1118	44	-	-	12.70	0.500	-	-	-	-
1150	46	1168	46	-	-	12.70	0.500	-	-	-	-
1200	48	1219	48	-	-	12.70	0.500	-	-	-	-

Nominal pipe size (NPS)		Outside Diameter		Nominal wall Thickness							
A	B			Sch120		Sch140		Sch160		XXS	
				MM	IN	MM	IN	MM	IN	MM	IN
8	1/4	13.7	0.540	-	-	-	-	-	-	-	-
10	3/8	17.1	0.675	-	-	-	-	-	-	-	-
15	1/2	21.3	0.840	-	-	-	-	4.78	0.188	7.47	0.294
20	3/4	26.7	1.05	-	-	-	-	5.56	0.219	7.82	0.308
25	1	33.4	1.32	-	-	-	-	6.35	0.250	9.09	0.358
32	1 1/4	42.2	1.66	-	-	-	-	6.35	0.250	9.70	0.382
40	1 1/2	48.3	1.9	-	-	-	-	7.14	0.281	10.15	0.400
50	2	60.3	2.38	-	-	-	-	8.74	0.344	11.07	0.436
65	2 1/2	73.0	2.88	-	-	-	-	9.53	0.375	14.02	0.552
80	3	88.9	3.5	-	-	-	-	11.13	0.438	15.24	0.600
90	3 1/2	101.6	4	-	-	-	-	-	-	-	-
100	4	114.3	4.5	11.13	0.438	-	-	13.49	0.531	17.12	0.674
125	5	141.3	5.56	12.70	0.500	-	-	15.88	0.625	19.05	0.750
150	6	168.3	6.62	14.27	0.562	-	-	18.26	0.719	21.95	0.864
200	8	219.1	8.62	18.26	0.719	20.62	0.812	23.01	0.906	22.23	0.875
250	10	273.0	10.75	21.44	0.844	25.40	1.000	28.58	1.125	25.40	1.000
300	12	323.8	12.75	25.40	1.000	28.58	1.125	33.32	1.312	25.40	1.000
350	14	355.6	14	27.79	1.094	31.75	1.250	35.71	1.406	-	-
400	16	406.4	16	30.96	1.219	36.53	1.438	40.49	1.594	-	-
450	18	457	18	34.93	1.375	39.67	1.562	45.24	1.781	-	-
500	20	508	20	38.10	1.500	44.45	1.750	50.01	1.969	-	-
550	22	559	22	41.28	1.625	47.63	1.875	53.98	2.125	-	-
600	24	610	24	46.02	1.812	52.37	2.062	59.54	2.344	-	-
650	26	660	26	-	-	-	-	-	-	-	-
700	28	711	28	-	-	-	-	-	-	-	-
750	30	762	30	-	-	-	-	-	-	-	-
800	32	813	32	-	-	-	-	-	-	-	-
850	34	864	34	-	-	-	-	-	-	-	-
900	36	914	36	-	-	-	-	-	-	-	-
950	38	965	38	-	-	-	-	-	-	-	-
1000	40	1016	40	-	-	-	-	-	-	-	-
1050	42	1067	42	-	-	-	-	-	-	-	-
1100	44	1118	44	-	-	-	-	-	-	-	-
1150	46	1168	46	-	-	-	-	-	-	-	-
1200	48	1219	48	-	-	-	-	-	-	-	-

CANGZHOU HUAYE

METAL PRODUCTS CO.,LTD.

CTY XNK HUY PHÁT
Hotline:0981643181
0909651167

Wall Thickness Schedules (JIS and DIN)

JIS G3452 JIS G3454 JIS G3457

Nominal pipe size(NPS)		Outside Diameter	SGP		LG		STD		XS	
A	B	JIS	W.T	I.D	W.T	I.D	W.T	I.D	W.T	I.D
15	1/2	21.7	2.8	16.1	-	-	-	-	-	-
20	3/4	27.2	2.8	21.6	-	-	-	-	-	-
25	1	34	3.2	27.6	-	-	-	-	-	-
32	1 1/4	42.7	3.5	35.7	-	-	-	-	-	-
40	1 1/2	48.6	3.5	41.6	-	-	-	-	-	-
50	2	60.5	3.8	52.9	-	-	-	-	-	-
65	2 1/2	76.3	4.2	67.9	-	-	-	-	-	-
80	3	89.1	4.2	80.7	-	-	-	-	-	-
90	3 1/2	101.6	4.2	93.2	-	-	-	-	-	-
100	4	114.3	4.5	105.3	-	-	-	-	-	-
125	5	139.8	4.5	130.8	-	-	-	-	-	-
150	6	165.2	5	155.2	5	155.2	-	-	-	-
200	8	216.3	5.8	204.7	5.8	204.7	-	-	-	-
250	10	267.4	6.6	254.2	6.6	254.2	-	-	-	-
300	12	318.5	6.9	304.7	6.9	304.7	-	-	-	-
350	14	355.6	7.9	339.8	7.9	339.8	9.5	336.6	12.7	330.2
400	16	406.4	7.9	390.6	7.9	390.6	9.5	387.4	12.7	381
450	18	457.2	7.9	441.4	7.9	441.4	9.5	438.2	12.7	431.8
500	20	508	7.9	492.2	7.9	492.2	9.5	489	12.7	482.6
550	22	558.8	-	-	7.9	543	9.5	539.8	12.7	533.4
600	24	609.6	-	-	7.9	593.8	9.5	590.6	12.7	584.2
650	26	660.4	-	-	7.9	644.6	9.5	641.4	12.7	635
700	28	711.2	-	-	7.9	695.4	9.5	692.2	12.7	685.8
750	30	762	-	-	7.9	746.2	9.5	743	12.7	736.6
800	32	812.8	-	-	7.9	797	9.5	793.8	12.7	787.4
850	34	863.6	-	-	7.9	847.8	9.5	844.6	12.7	838.2
900	36	914.4	-	-	7.9	898.6	9.5	895.4	12.7	889
950	38	965.2	-	-	7.9	949.4	9.5	946.2	12.7	939.8
1000	40	1016	-	-	7.9	1000.2	9.5	997	12.7	990.6
1050	42	1066.8	-	-	-	-	9.5	1047.8	12.7	1041.4
1100	44	1117.6	-	-	-	-	9.5	1098.6	12.7	1092.2
1150	46	1168.4	-	-	-	-	9.5	1149.4	12.7	1143
1200	48	1219.2	-	-	-	-	9.5	1200.2	12.7	1193.8

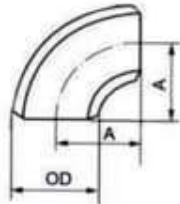
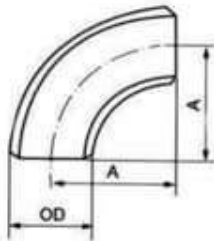
DIN 2448 DIN 2458

Nominal pipe size(NPS)		Outside Diameter	Wall thickness, s, for series				
A	B		1	2	3	4	5
1/2	15	21.3	1.6	-	2.0	3.2	4.0
3/4	20	26.9	1.6	-	2.3	3.2	4.0
1	25	33.7	2.0	-	2.6	3.2	4.0
1 1/4	32	42.4	2.0	-	2.6	3.6	4.0
1 1/2	40	48.3	2.0	-	2.6	4.0	5.0
2	50	60.3	2.0	-	2.9	4.5	5.6
2 1/2	65	76.1	2.3	-	2.9	5.0	7.1
3	80	88.9	2.3	-	3.2	5.6	8.0
4	100	114.3	2.6	-	3.6	6.3	8.8
5	125	139.7	2.6	-	4.0	6.3	10.0
6	150	168.3	2.6	4.0	4.5	7.1	11.0
8	200	219.1	2.9	4.5	6.3	8.0	12.5
10	250	273	2.9	5.0	6.3	8.8	-
12	300	323.9	2.9	5.6	7.1	10.0	-
14	350	355.6	3.2	5.6	8.0	11.0	-
16	400	406.4	3.2	6.3	8.8	12.5	-
18	450	457	4.0	6.3	10.0	-	-
20	500	508	4.0	6.3	11.0	-	-
24	600	610	5.0	6.3	12.5	-	-
28	700	711	5.0	7.1	12.5	-	-
32	800	813	5.6	8.0	12.5	-	-
36	900	914	6.3	10.0	12.5	-	-
40	1000	1016	6.3	10.0	12.5	-	-
48	1200	1220	6.3	12.5	-	-	-

【TECHNICAL DATA】

Wrought Steel Buttwelding Fittings(ASME)
Long and Short Radius Elbows

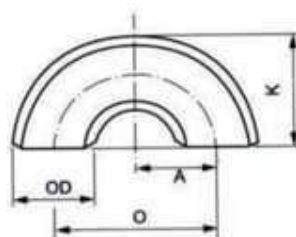
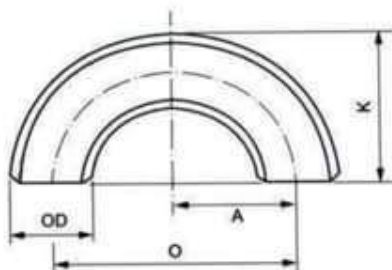
CTY XNK HUY PHÁT
Hotline:0981643181
0909651167



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
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	2.50	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	5.80	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	11.60	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	17.40	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
48	48	1219	72	1829	48	1219	29.88	759	19.88	505

Wrought Steel Buttwelding Fittings(ASME)
Long and Short Radius Returns



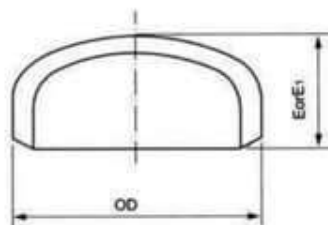
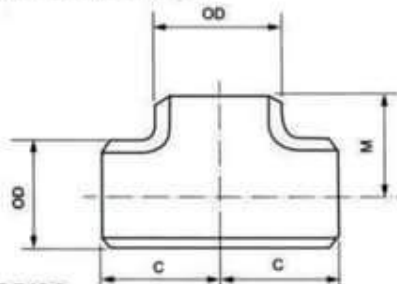
ASME B16.9, B16.28

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
24	24	610	72	1829	48	1219	48	1219	36	914

[TECHNICAL DATA]

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Wrought Steel Buttwelding Fittings(ASME)
 Straight Tees and Caps



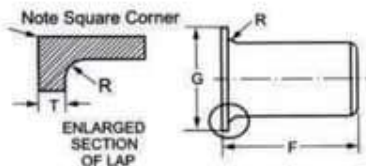
ASME B16.9

Nominal pipe size (NPS)	Outside Diameter at bevel OD		Center-to-End				End-to-End					
			Straight Tees				Caps					
							Length(2)		Limiting Wall Thickness for Length "E"		Length(3)	
			C		M(1)		E				E ₁	
	IN	MM	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 1/8	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	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	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	-	-	-	-

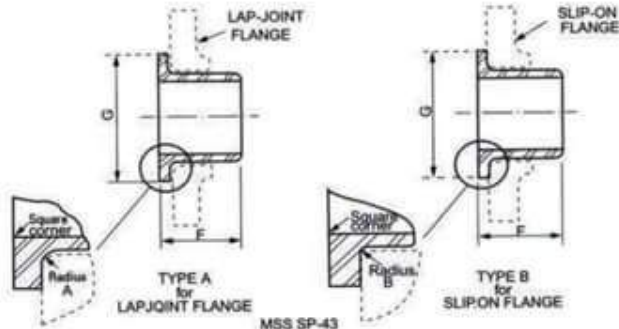
NOTES:

- (1) outlet dimension M for NPS 26 and larger is recommended but not required.
- (2) length E applies for thickness not exceeding that given in column " Limiting Wall Thickness for Length E "
- (3) length E₁ applies for thickness greater than that given in column " Limiting Wall Thickness for Length E " for NPS24 and smaller.

Wrought Steel Buttwelding Fittings(ASME)
 Lap Joint Stub Ends



ASME B16.9



MSS SP-43

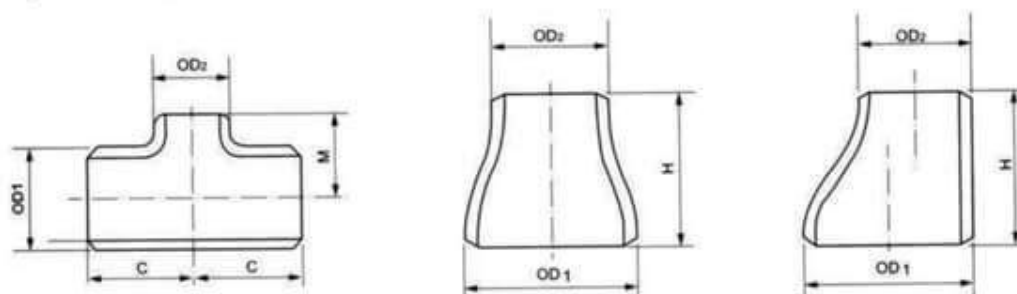
ASME B16.9 ,MSS SP-43

Nominal pipe size(NPS)	Outside Diameter at bevel OD		Outside Diameter of barrel				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
24	12	305	6	152	0.5	13	0.06	1.5

[TECHNICAL DATA]

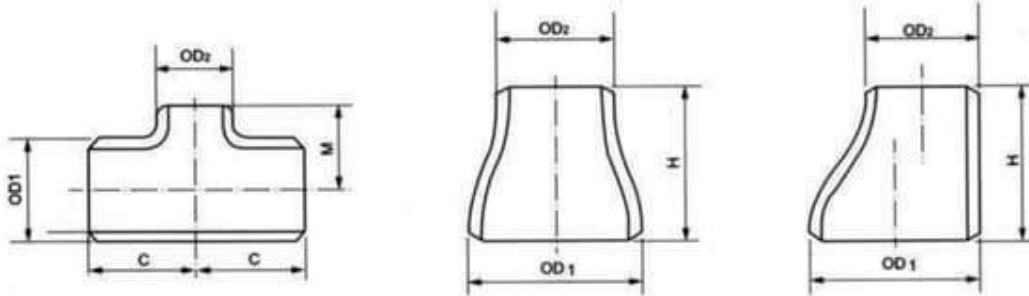
Wrought Steel Buttwelding Fittings(ASME)
 Reducing Tees and Concentric & Eccentric Reducers



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
1/4 x 1/4	1.05	26.7	0.84	21.3	1.12	29	1.12	29	1.5	38
1 x 1/4	1.32	33.4	1.05	26.7	1.5	38	1.5	38	2	51
1 x 1/2	1.32	33.4	0.84	21.3	1.5	38	1.5	38	2	51
1 1/4 x 1	1.66	42.2	1.32	33.4	1.88	48	1.88	48	2	51
1 1/4 x 3/4	1.66	42.2	1.05	26.7	1.88	48	1.88	48	2	51
1 1/4 x 1/2	1.66	42.2	0.84	21.3	1.88	48	1.88	48	2	51
1 1/2 x 1 1/4	1.9	48.3	1.66	42.2	2.25	57	2.25	57	2.5	64
1 1/2 x 1	1.9	48.3	1.32	33.4	2.25	57	2.25	57	2.5	64
1 1/2 x 3/4	1.9	48.3	1.05	26.7	2.25	57	2.25	57	2.5	64
1 1/2 x 1/2	1.9	48.3	0.84	21.3	2.25	57	2.25	57	2.5	64
2 x 1 1/2	2.38	60.3	1.9	48.3	2.5	64	2.38	60	3	76
2 x 1 1/4	2.38	60.3	1.66	42.2	2.5	64	2.25	57	3	76
2 x 1	2.38	60.3	1.32	33.4	2.5	64	2	51	3	76
2 x 3/4	2.38	60.3	1.05	26.7	2.5	64	1.75	44	3	76
2 x 1/2	2.38	60.3	0.84	21.3	2.5	64	-	-	3	76
2 1/2 x 2	2.88	73	2.38	60.3	3	76	2.75	70	3.5	89
2 1/2 x 1 1/2	2.88	73	1.9	48.3	3	76	2.62	67	3.5	89
2 1/2 x 1 1/4	2.88	73	1.66	42.2	3	76	2.5	64	3.5	89
2 1/2 x 1	2.88	73	1.32	33.4	3	76	2.25	57	3.5	89
2 1/2 x 3/4	2.88	73	1.05	26.7	3	76	-	-	3.5	89
2 1/2 x 1/2	2.88	73	0.84	21.3	3	76	-	-	3.5	89
3 x 2 1/2	3.5	88.9	2.88	73	3.38	86	3.25	83	3.5	89
3 x 2	3.5	88.9	2.38	60.3	3.38	86	3	76	3.5	89
3 x 1 1/2	3.5	88.9	1.9	48.3	3.38	86	2.88	73	3.5	89
3 x 1 1/4	3.5	88.9	1.66	42.2	3.38	86	2.75	70	3.5	89
3 x 1	3.5	88.9	1.32	33.4	3.38	86	-	-	3.5	89
3 x 3/4	3.5	88.9	1.05	26.7	3.38	86	-	-	3.5	89
3 x 1/2	3.5	88.9	0.84	21.3	3.38	86	-	-	3.5	89
3 1/2 x 3	4	101.6	3.5	88.9	3.75	95	3.62	92	4	102
3 1/2 x 2 1/2	4	101.6	2.88	73	3.75	95	3.5	89	4	102
3 1/2 x 2	4	101.6	2.38	60.3	3.75	95	3.25	83	4	102
3 1/2 x 1 1/2	4	101.6	1.9	48.3	3.75	95	3.12	79	4	102
3 1/2 x 1 1/4	4	101.6	1.66	42.2	3.75	95	-	-	4	102
4 x 3 1/2	4.5	114.3	4	101.6	4.12	105	4	102	4	102
4 x 3	4.5	114.3	3.5	88.9	4.12	105	3.88	98	4	102
4 x 2 1/2	4.5	114.3	2.88	73	4.12	105	3.75	95	4	102
4 x 2	4.5	114.3	2.38	60.3	4.12	105	3.5	89	4	102
4 x 1 1/2	4.5	114.3	1.9	48.3	4.12	105	3.38	86	4	102
4 x 1 1/4	4.5	114.3	1.66	42.2	4.12	105	-	-	4	102
4 x 1	4.5	114.3	1.32	33.4	4.12	105	-	-	4	102

Wrought Steel Buttwelding Fittings(ASME)
 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(1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
5×4	5.56	141.3	4.5	114.3	4.88	124	4.62	117	5	127
5×3½	5.56	141.3	4	101.6	4.88	124	4.5	114	5	127
5×3	5.56	141.3	3.5	88.9	4.88	124	4.38	111	5	127
5×2½	5.56	141.3	2.88	73	4.88	124	4.25	108	5	127
5×2	5.56	141.3	2.38	60.3	4.88	124	4.12	105	5	127
5×1½	5.56	141.3	1.9	48.3	4.88	124	*	*	5	127
5×1¼	5.56	141.3	1.66	42.2	4.88	124	*	*	5	127
6×5	6.62	168.3	4.56	114.3	5.62	143	5.38	137	5.5	140
6×4	6.62	168.3	4.5	114.3	5.62	143	5.12	130	5.5	140
6×3½	6.62	168.3	4	101.6	5.62	143	5	127	5.5	140
6×3	6.62	168.3	3.5	88.9	5.62	143	4.88	124	5.5	140
6×2½	6.62	168.3	2.88	73	5.62	143	4.75	121	5.5	140
6×2	6.62	168.3	2.38	60.3	5.62	143	*	*	5.5	140
8×6	8.62	219.1	6.62	168.3	7	178	6.62	168	6	152
8×5	8.62	219.1	5.56	141.3	7	178	6.38	162	6	152
8×4	8.62	219.1	4.5	114.3	7	178	6.12	156	6	152
8×3½	8.62	219.1	4	101.6	7	178	6	152	6	152
8×3	8.62	219.1	3.5	88.9	7	178	*	*	6	152
10×8	10.75	273	8.62	219.1	8.5	216	8	203	7	178
10×6	10.75	273	6.62	168.3	8.5	216	7.62	194	7	178
10×5	10.75	273	5.56	141.3	8.5	216	7.5	191	7	178
10×4	10.75	273	4.5	114.3	8.5	216	7.25	184	7	178
10×3	10.75	273	3.5	88.9	8.5	216	*	*	7	178
12×10	12.75	323.8	10.75	273	10	254	9.5	241	8	203
12×8	12.75	323.8	8.62	219.1	10	254	9	229	8	203
12×6	12.75	323.8	6.62	168.3	10	254	8.62	219	8	203
12×5	12.75	323.8	5.56	141.3	10	254	8.5	216	8	203
12×4	12.75	323.8	4.5	114.3	10	254	*	*	8	203
14×12	14	355.6	12.75	323.8	11	279	10.62	270	13	330
14×10	14	355.6	10.75	273	11	279	10.12	257	13	330
14×8	14	355.6	8.62	219.1	11	279	9.75	248	13	330
14×6	14	355.6	6.62	168.3	11	279	9.38	238	13	330
14×5	14	355.6	5.56	141.3	11	279	*	*	13	330
16×14	16	406.4	14	355.6	12	305	12	305	14	356
16×12	16	406.4	12.75	323.8	12	305	11.62	295	14	356
16×10	16	406.4	10.75	273	12	305	11.12	283	14	356
16×8	16	406.4	8.62	219.1	12	305	10.75	273	14	356
16×6	16	406.4	6.62	168.3	12	305	10.38	264	14	356
18×16	18	457	16	406.4	13.5	343	13	330	15	381

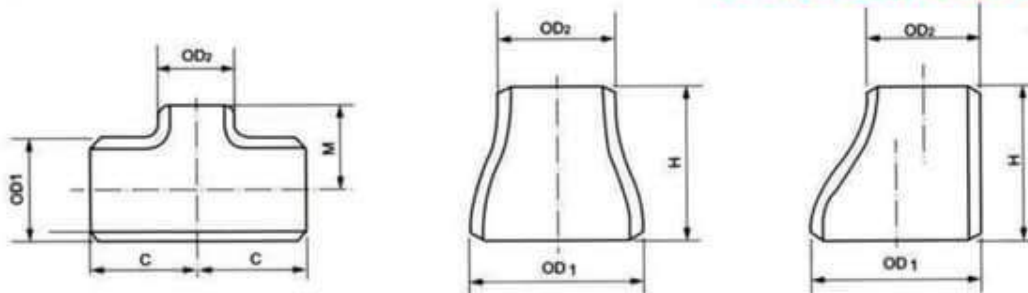
NOTE:

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

[TECHNICAL DATA]

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Wrought Steel Buttwelding Fittings(ASME)
 Reducing Tees and Concentric & Eccentric Reducers



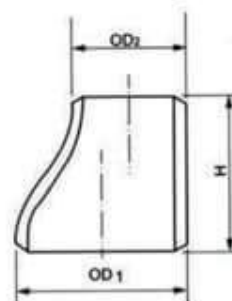
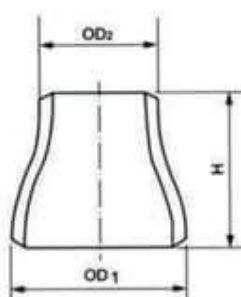
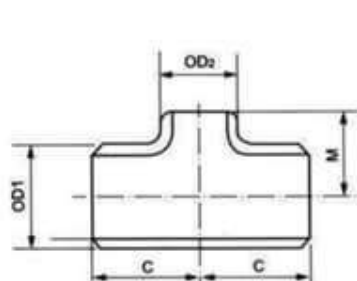
ASME B16.9

Nominal pipe size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M(1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
18×14	18	457	14	355.6	13.5	343	13	330	15	381
18×12	18	457	12.75	323.8	13.5	343	12.62	321	15	381
18×10	18	457	10.75	273	13.5	343	12.12	308	15	381
18×8	18	457	8.62	219.1	13.5	343	11.75	298	15	381
20×18	20	508	18	457.2	15	381	14.5	368	20	508
20×16	20	508	16	406.4	15	381	14	356	20	508
20×14	20	508	14	355.6	15	381	14	356	20	508
20×12	20	508	12.75	323.8	15	381	13.62	346	20	508
20×10	20	508	10.75	273	15	381	13.12	333	20	508
20×8	20	508	8.62	219.1	15	381	12.75	324	20	508
22×20	22	559	20	508	16.5	419	16	406	20	508
22×18	22	559	18	457.2	16.5	419	15.5	394	20	508
22×16	22	559	16	406.4	16.5	419	15	381	20	508
22×14	22	559	14	355.6	16.5	419	15	381	20	508
22×12	22	559	12.75	323.8	16.5	419	14.62	371	20	508
22×10	22	559	10.75	273	16.5	419	14.12	359	20	508
24×22	24	610	22	558.8	17	432	17	432	20	508
24×20	24	610	20	508	17	432	17	432	20	508
24×18	24	610	18	457.2	17	432	16.5	419	20	508
24×16	24	610	16	406.4	17	432	16	406	20	508
24×14	24	610	14	355.6	17	432	16	406	20	508
24×12	24	610	12.75	323.8	17	432	15.62	397	20	508
24×10	24	610	10.75	273	17	432	15.12	384	20	508
26×24	26	660	24	609.6	19.5	495	19	483	24	610
26×22	26	660	22	558.8	19.5	495	18.5	470	24	610
26×20	26	660	20	508	19.5	495	18	457	24	610
26×18	26	660	18	457.2	19.5	495	17.5	444	24	610
26×16	26	660	16	406.4	19.5	495	17	432	24	610
26×14	26	660	14	355.6	19.5	495	17	432	24	610
26×12	26	660	12.75	323.8	19.5	495	16.62	422	24	610
28×26	28	711	26	660.4	20.5	521	20.5	521	24	610
28×24	28	711	24	609.6	20.5	521	20	508	24	610
28×22	28	711	22	558.8	20.5	521	19.5	495	24	610
28×20	28	711	20	508	20.5	521	19	483	24	610
28×18	28	711	18	457.2	20.5	521	18.5	470	24	610
28×16	28	711	16	406.4	20.5	521	18	457	24	610
28×14	28	711	14	355.6	20.5	521	18	457	24	610
28×12	28	711	12.75	323.8	20.5	521	17.62	448	24	610
30×28	30	762	28	711.2	22	559	21.5	546	24	610

NOTE:

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

Wrought Steel Buttwelding Fittings(ASME)
 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(1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
30×26	30	762	26	660.4	22	559	21.5	546	24	610
30×24	30	762	24	609.6	22	559	21	533	24	610
30×22	30	762	22	558.8	22	559	20.5	521	24	610
30×20	30	762	20	508	22	559	20	508	24	610
30×18	30	762	18	457.2	22	559	19.5	495	24	610
30×16	30	762	16	406.4	22	559	19	483	24	610
30×14	30	762	14	355.6	22	559	19	483	24	610
30×12	30	762	12.75	323.8	22	559	18.62	473	24	610
30×10	30	762	10.75	273	22	559	18.12	460	24	610
32×30	32	813	30	762	23.5	597	23	584	24	610
32×28	32	813	28	711.2	23.5	597	22.5	572	24	610
32×26	32	813	26	660.4	23.5	597	22.5	572	24	610
32×24	32	813	24	609.6	23.5	597	22	559	24	610
32×22	32	813	22	558.8	23.5	597	21.5	546	24	610
32×20	32	813	20	508	23.5	597	21	533	24	610
32×18	32	813	18	457.2	23.5	597	20.5	521	24	610
32×16	32	813	16	406.4	23.5	597	20	508	24	610
32×14	32	813	14	355.6	23.5	597	20	508	24	610
34×32	34	864	32	812.8	25	635	24.5	622	24	610
34×30	34	864	30	762	25	635	24	610	24	610
34×28	34	864	28	711.2	25	635	23.5	597	24	610
34×26	34	864	26	660.4	25	635	23.5	597	24	610
34×24	34	864	24	609.6	25	635	23	584	24	610
34×22	34	864	22	558.8	25	635	22.5	572	24	610
34×20	34	864	20	508	25	635	22	559	24	610
34×18	34	864	18	457.2	25	635	21.5	546	24	610
34×16	34	864	16	406.4	25	635	21	533	24	610
36×34	36	914	34	863.6	26.5	673	26	660	24	610
36×32	36	914	32	812.8	26.5	673	25.5	648	24	610
36×30	36	914	30	762	26.5	673	25	635	24	610
36×28	36	914	28	711.2	26.5	673	24.5	622	24	610
36×26	36	914	26	660.4	26.5	673	24.5	622	24	610
36×24	36	914	24	609.6	26.5	673	24	610	24	610
36×22	36	914	22	558.8	26.5	673	23.5	597	24	610
36×20	36	914	20	508	26.5	673	23	584	24	610
36×18	36	914	18	457.2	26.5	673	22.5	572	24	610
36×16	36	914	16	406.4	26.5	673	22	559	24	610
38×36	38	965	36	914.4	28	711	28	711	24	610
38×34	38	965	34	863.6	28	711	27.5	698	24	610

NOTE:

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

[TECHNICAL DATA]

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MATERIAL SPECIFICATIONS FOR BUTT-WELDING FITTINGS(ASTM)

ASTM A234/A234M-00a
Piping Fittings of Wrought Carbon Steel and Alloy Steel for
Moderate and High Temperature Service

Grade	Composition, %										
	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	V	Nb
WPB(1)(2)(3)(4)	0.30	0.29-1.06	0.050	0.058	0.10	0.40	0.15	0.40	0.40	0.08	0.02
WPC(1)(2)(3)(4)	0.35	0.29-1.06	0.050	0.058	0.10	0.40	0.15	0.40	0.40	0.08	0.02
WP11 CL1	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	-	-	-	-
WP11 CL2 WP11 CL3	0.05-0.20	0.30-0.80	0.040	0.040	0.50-1.00	1.00-1.50	0.44-0.65	-	-	-	-

GENERAL NOTE:

All values are maximum unless otherwise indicated.

NOTES:

- (1) For each reduction of 0.01% below the specified C maximum, an increase of 0.06% Mn above the specified maximum will be permitted, up to a maximum of 1.35%.
- (2) The sum of Cu, Ni, Cr, and Mo shall not exceed 1.00%.
- (3) The sum of Cr and Mo shall not exceed 0.32%.
- (4) The maximum carbon equivalent (C.E.) shall be 0.50, based on heat analysis and the formula $C.E. = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$.

Tensile Requirements	WPB	WPC, WP11CL2	WP11CL1	WP11CL3
Tensile Strength, min, ksi[MPa]	60-85	70-95	60-85	75-100
(0.2% offset or 0.5% Extension-under-load)	[415-585]	[485-655]	[415-585]	[520-690]
Yield Strength, min, ksi[MPa]	32	40	30	45
	[240]	[275]	[205]	[310]

	Wall thickness		Elongation Requirements	
	in	mm	Longitudinal	Transverse
Standard round specimen, or small proportional specimen, min % in 4D			22	14
Rectangular Specimen for wall thickness 0.312in [7.94mm] and over, and for all small sizes tested in full section; min % in 2in[50mm]	≥0.312	≥7.94	30	20
Rectangular Specimen for wall thickness less than 0.312in [7.94mm]; min % in 2 in[50mm] (0.5in [12.7mm] wide specimen)	0.281	7.14	28.5	19
	0.250	6.35	27.0	18
	0.219	5.56	25.5	-
	0.188	4.76	24.0	-
	0.156	3.97	22.5	-
	0.125	3.17	21.0	-
	0.094	2.38	19.5	-
	0.062	1.59	18.0	-

Where the wall thickness lies between two values above, the min elongation value is determined by the following equations:

Longitudinal $E = 48t + 15.00$
Transverse $E = 32t + 10.00$

E = elongation in 2in[50mm], %
t = actual thickness of specimen, in[mm]

Material Specifications for Butt-Welding Fittings (JIS and DIN)

JIS B2311 Steel Butt-Welding Pipe Fittings for Ordinary Use
 JIS G3452 Carbon Steel Pipes for Ordinary Piping
 JIS G3457 Arc Welded Carbon Steel Pipes

Steel Grade	Chemical Composition %			Tensile	Yield	Elongation%(1)	
	C	p	S	Strength	Point	Longitudinal	Transverse
	Max			N/mm2 Min		Min	Min
SGP	-	0.040	0.040	290	-	30 _(J)	25 ₍₂₎
PY400	0.25	0.040	0.040	400	255	-	18

NOTES:

- (1) Values specified are for wall thickness 8mm and over. For each 1mm decrease in wall thickness below 8mm, a deduction of 1.5% for both longitudinal and transverse from the values shown above is permitted.
 (2) Values not applicable to NPS below 32A.

DIN 1626 Welded Circular Unalloyed Steel Tubes Subject to Special Requirements
 DIN 1629 Seamless Circular Unalloyed Steel Tubes Subject to Special Requirements
 DIN 17175 Seamless Tubes of Heat-Resistant Steels

Steel Grade Symbol	Type of deoxidization	Chemical Composition (cast analysis)% (max unless otherwise specified)					
		C	Si(1)	Mn	P	S	N _{max}
St 37.0	R	0.17	-	-	0.040	0.040	0.009 _(JIS)
St 35.8	-	0.17	0.10-0.35	0.40-0.80	0.040	0.040	-

NOTES:

- (1) The minimum Si content is allowed to fall below 0.10%, when the steel is aluminium-killed or vacuum-deoxidized.
 (2) A content in excess of the maximum value stated is permitted if a P content less than the maximum specified by 0.005% P per 0.001% N is observed. However the N content shall not exceed a value of 0.012% in the case analysis and 0.014% in the product analysis.
 (3) The specified value does not apply if the steels are supplied with the RR (instead of R) type of deoxidization.
 R=killed, including semi-killed
 RR=fully killed

Amounts by which the chemical composition in the product/sample analysis may deviate from the limiting values applicable to the cast analysis.

Element	St 37.0 Allowable Deviation Amount %	St 35.8	
		Limits Quoted in Cast Analysis	Allowable Deviation Amount, %
C	0.02	≤0.24	±0.02
Si	-	≤0.35	±0.03
Mn	-	≤1.00	±0.04
P	0.010	≤0.040	±0.010
S	0.010	≤0.040	±0.010
N	0.001(1)	-	-

NOTES:

- (1) A content in excess of the maximum value stated is permitted if a P content less than the maximum specified by 0.005% P per 0.001% N is observed. However the N content shall not exceed a value of 0.012% in the case analysis and 0.014% in the product analysis (this does not apply to the RR type of deoxidization).
 (2) In a cast the deviation of an element in a sample analysis is permitted to be below the minimum value or only above the maximum value of the range stipulated for the cast analysis, though not both at the same time.

Steel Grade Symbol	Upper Yield Stress ReH for Wall thicknesses,in mm			Tensile Strength Rm	Elongation after Fracture A5		Impact Strength Transverse
	ReH≤16	16<ReH≤40	40<ReH≤60		Longitudinal	Transverse	
	Min N/mm2				Min %		
St 37.0	235	225	215	350(1)-480	25	23	-
St 35.8	235	225	215	360-480	25	23	34

NOTE:

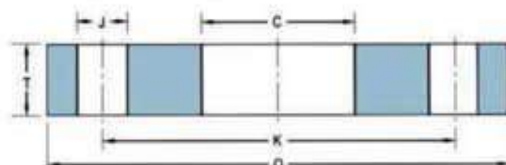
- (1) For cold finished tubes in the NBK condition, minimum values of tensile strength lower than this value by 10N/mm² is permitted.

[TECHNICAL DATA]

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MILD STEEL PLATE FLANGE DIN

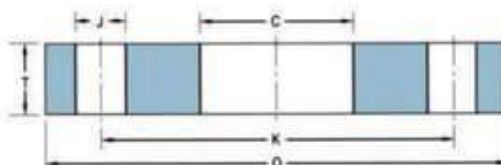
PN10 PL FF (NP 10kg/cm ²)								
NOMINAL PIPE SIZE		OUTER DIAMETER O (mm)	INTERNAL DIAMETER C (mm)	THICKNESS T (mm)	NO.OF BOLT HOLES	DIAMETER OF BOLT HOLES J (mm)	DIAMETER OF BOLT HOLE K (mm)	APPROXIMATE WEIGHT (kg)
mm	Inch							FLAT FACE
15	1/2	95	22.0	14	4	14	65	0.67
20	3/4	105	27.6	16	4	14	75	0.94
25	1	115	34.4	16	4	14	85	1.11
32	1 1/4	140	43.1	16	4	18	100	1.62
40	1 1/2	150	49.0	16	4	18	110	1.86
50	2	165	61.1	18	4	18	125	2.47
65	2 1/2	185	77.1	18	4	18	145	3.00
80	3	200	90.3	20	4	18	160	3.79
100	4	220	115.9	20	8	18	180	4.03
125	5	250	144.6	22	8	18	210	5.46
150	6	285	170.5	24	8	22	240	7.15
200	8	340	221.8	24	8	22	295	9.27
250	10	395	276.2	26	12	22	350	11.85
300	12	445	327.6	28	12	22	400	14.65
350	14	505	359.7	28	16	22	460	20.35
400	16	565	411.0	32	16	26	515	27.90
450	18	615	462.3	34	20	26	565	31.65
500	20	670	513.0	38	20	26	620	41.10
600	24	780	613.0	42	20	30	725	55.60



PN16 PL FF (NP 16kg/cm ²)								
NOMINAL PIPE SIZE		OUTER DIAMETER O (mm)	INTERNAL DIAMETER C (mm)	THICKNESS T (mm)	NO.OF BOLT HOLES	DIAMETER OF BOLT HOLES J (mm)	DIAMETER OF BOLT HOLE K (mm)	APPROXIMATE WEIGHT (kg)
mm	Inch							FLAT FACE BLIND
15	1/2	95	22.0	14	4	14	65	0.67 0.71
20	3/4	105	27.6	16	4	14	75	0.93 1.01
25	1	115	34.4	16	4	14	85	1.11 1.23
32	1 1/4	140	43.1	16	4	18	100	1.63 1.80
40	1 1/2	150	49.0	18	4	18	110	1.92 2.09
50	2	165	61.1	18	4	18	125	2.45 2.88
65	2 1/2	185	77.1	18	4	18	145	3.03 3.65
80	3	200	90.3	20	8	18	160	3.61 4.77
100	4	220	115.9	20	8	18	180	4.00 5.65
125	5	250	144.6	22	8	18	210	5.41 8.12
150	6	285	170.5	24	8	22	240	7.61 10.5
200	8	340	221.8	26	12	22	295	9.71 17.59
250	10	405	276.2	26	12	26	355	14.72 28.83
300	12	460	327.6	28	12	26	410	16.60 35.12
350	14	520	359.7	30	16	26	470	24.08 48.01
400	16	580	411.0	32	16	30	525	30.20 63.50
450	18	640	462.3	38	20	30	585	41.67 91.74
500	20	715	513.0	38	20	33	650	53.0 114.66
600	24	840	613.0	38	20	36	770	71.19 159.23

MILD STEEL PLATE FLANGE
ANSI

150LB PLFF									
NOMINAL PIPE SIZE		OUTER DIAMETER O (mm)	INTERNAL DIAMETER C (mm)	THICKNESS T (mm)	NO.OF BOLT HOLES	DIAMETER OF BOLT HOLES J (mm)	DIAMETER OF BOLT HOLE K (mm)	APPROXIMATE WEIGHT (kg)	
mm	Inch							FLAT FACE	BLIND
15	1/2	89	22.3	12	4	15.9	60.3	0.48	0.50
20	3/4	98	27.7	14	4	15.9	69.9	0.68	0.75
25	1	108	34.5	14	4	15.9	79.4	0.82	0.92
32	1 1/8	117	43.2	16	4	15.9	88.9	1.09	1.25
40	1 1/2	127	49.5	16	4	15.9	98.4	1.28	1.50
50	2	152	62.0	16	4	19.1	120.7	1.76	2.14
65	2 1/2	178	74.7	18	4	19.1	139.7	2.74	3.35
80	3	191	90.7	18	4	19.1	152.4	2.97	3.90
100	4	229	116.1	18	8	19.1	190.5	4.00	5.50
125	5	254	143.8	20	8	22.2	215.9	4.92	7.48
150	6	279	170.7	22	8	22.2	241.3	6.08	10.02
200	8	343	221.5	22	8	22.2	298.5	8.78	15.42
250	10	406	276.3	24	12	25.4	362.0	11.95	23.25
300	12	483	327.1	26	12	25.4	431.8	19	36.15
350	14	533	359.2	28	12	28.6	476.3	25.08	47.35
400	16	597	410.5	31	16	28.6	539.8	33.41	65.12
450	18	635	461.8	34	16	31.8	577.9	36.4	81.13
500	20	699	513.1	37	20	31.8	635.0	47.0	106.85
600	24	813	615.9	42	20	34.9	749.3	66.62	164.85



JIS 16K PL FF (16kg/cm ²)								
NOMINAL PIPE SIZE		OUTER DIAMETER O (mm)	INTERNAL DIAMETER C (mm)	THICKNESS T (mm)	NO. OF BOLT HOLES	DIAMETER OF BOLT HOLES J (mm)	DIAMETER OF BOLT HOLE K (mm)	APPROXIMATE WEIGHT (kg)
mm	Inch							FLAT FACE
15	1/2	95	22.2	12	4	15	70	0.57
20	3/4	100	27.7	14	4	15	75	0.73
25	1	125	34.5	14	4	19	90	1.13
32	1 1/8	135	43.2	16	4	19	100	1.48
40	1 1/2	140	49.1	16	4	19	105	1.56
50	2	155	61.1	16	8	19	120	1.88
65	2 1/2	175	77.1	18	8	19	140	2.60
80	3	200	90.0	20	8	23	160	3.41
100	4	225	115.4	22	8	23	185	4.49
125	5	270	141.2	22	8	25	225	6.51
150	6	305	166.6	24	12	25	260	8.55
200	8	350	218.0	26	12	25	305	10.82
250	10	430	269.5	28	12	27	380	17.88
300	12	480	321.0	30	16	27	460	21.42
350	14	540	358.1	34	16	33	480	30.62
400	16	605	409.0	38	16	33	540	42.51
450	18	675	460.0	40	20	33	605	54.85
500	20	730	511.0	42	20	33	660	64.78
600	24	845	613.0	46	24	39	770	85.64

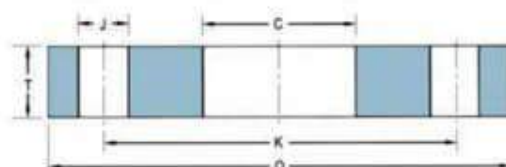
[TECHNICAL DATA]

CTY XNK HUY PHÁT
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MILD STEEL PLATE FLANGE
 JIS

JIS 5K PL FF (5kg/cm ²)								
NOMINAL PIPE SIZE		OUTER DIAMETER O (mm)	INTERNAL DIAMETER C (mm)	THICKNESS T (mm)	NO. OF BOLT HOLES	DIAMETER OF BOLT HOLES J (mm)	DIAMETER OF BOLT HOLE K (mm)	APPROXIMATE WEIGHT (kg)
mm	Inch							FLAT FACE
15	1/2	80	22.2	9	4	12	60	0.30
20	3/4	85	27.7	10	4	12	65	0.37
25	1	95	34.5	10	4	12	75	0.45
32	1 1/8	115	43.2	12	4	15	90	0.78
40	1 1/2	120	49.1	12	4	15	95	0.85
50	2	130	61.1	14	4	15	105	1.07
65	2 1/2	155	77.1	14	4	15	130	1.49
80	3	180	90.0	14	4	19	145	1.99
100	4	200	115.4	16	8	19	165	2.39
125	5	235	141.2	16	8	19	200	3.23
150	6	265	166.6	18	8	19	230	4.41
200	8	320	218.0	20	8	23	280	6.25
250	10	385	269.5	22	12	23	345.0	9.40
300	12	430	321.0	22	12	23	390	10.25
350	14	480	358.1	24	12	25	435	14.0
400	16	540	409.0	24	16	25	495	16.92
450	18	605	460.0	24	16	25	555	21.37
500	20	655	511.0	24	20	25	605.0	23.1
600	24	770	613.0	26	20	27	715	32.5

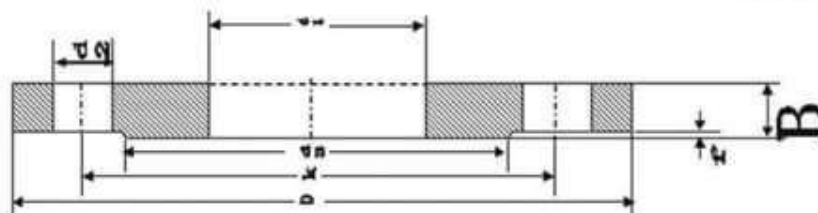


JIS 10K PL FF (10kg/cm ²)								
NOMINAL PIPE SIZE		OUTER DIAMETER O (mm)	INTERNAL DIAMETER C (mm)	THICKNESS T (mm)	NO. OF BOLT HOLES	DIAMETER OF BOLT HOLES J (mm)	DIAMETER OF BOLT HOLE K (mm)	APPROXIMATE WEIGHT (kg)
mm	Inch							FLAT FACE
15	1/2	95	22.2	12	4	15	70	0.57 0.61
20	3/4	100	27.7	14	4	15	75	0.73 0.79
25	1	125	34.5	14	4	19	90	1.13 1.24
32	1 1/8	135	43.2	16	4	19	100	1.48 1.66
40	1 1/2	140	49.1	16	4	19	105	1.56 1.81
50	2	155	61.1	16	4	19	120	1.88 2.23
65	2 1/2	175	77.1	18	4	19	140	2.60 3.296
80	3	185	90.0	18	8	19	150	2.61 3.54
100	4	210	115.4	18	8	19	175	3.10 4.66
125	5	250	141.2	20	8	23	210	4.77 7.30
150	6	280	166.6	22	8	23	240	6.34 10.1
200	8	330	218.0	22	12	23	290	7.50 14.1
250	10	400	269.5	24	12	25	355	11.80 22.7
300	12	445	321.0	24	16	25	400	12.58 27.82
350	14	490	358.1	26	16	25	445	16.33 38.2
400	16	560	409.0	28	16	27	510	23.24 52.13
450	18	620	460.0	30	20	27	565	29.26 68.4
500	20	675	511.0	30	20	27	620	33.28 81.58
600	24	795	613.0	32	24	33	730	45.40 120

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BS 4504 - PN16

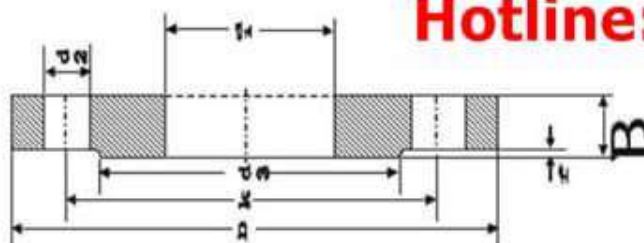
Size	D			B (t+f)	d1	d3	Bolting			U. WEIGHT (KGS/PC)
		t	f				K	Dia. Of Holes	Numbers - Size	
DN15	95	12	1.5	13.5	22	45	65	14	4	0.65
DN20	105	12	1.5	13.5	27	58	75	14	4	0.79
DN25	115	14	1.5	15.5	34	68	85	14	4	1.08
DN32	140	14	1.5	15.5	43	78	100	18	4	1.57
DN40	150	14	1.5	15.5	49	88	110	18	4	1.80
DN50	165	16	1.5	17.5	61	102	125	18	4	2.39
DN65	185	18	2	20	76	122	145	18	4	3.35
DN80	200	20	2	22	90.3	138	160	18	8	3.96
DN100	220	20	2	22	115.9	158	180	18	8	4.39
DN125	250	22	2	24	141.6	188	210	20	8	5.80
DN150	285	22	2	24	170	212	240	23	8	7.11
DN200	340	25	2	27	220	268	295	23	12	10.12
DN250	405	27	3	30	275	320	355	27	12	14.72
DN300	460	29	3	32	326	378	410	27	12	19.04

BS 4504 - PN10

Size	D			B (t+f)	d1	d3	Bolting			U. WEIGHT (KGS/PC)
		t	f				K	Dia. Of Holes	Numbers - Size	
DN15	95	10	2	12	22	45	65	12	4	0.59
DN20	105	12	2	14	27	55	75	14	4	0.82
DN25	115	12	2	14	34	65	85	14	4	0.97
DN32	135	14	2	16	43	78	100	16	4	1.51
DN40	145	15	3	18	49	85	110	18	4	1.92
DN50	160	15	3	18	61	100	125	18	4	2.28
DN65	180	17	3	20	77	120	145	18	4	3.10
DN80	195	17	3	20	90	135	160	18	4	3.53
DN100	215	19	3	22	115	155	180	18	8	4.12
DN125	245	21	3	24	142	185	210	18	8	5.51
DN150	280	21	3	24	170	210	240	22	8	6.75
DN200	335	21	3	24	221	265	295	22	8	8.80
DN250	390	23	3	26	275	320	350	23	12	11.23
DN300	440	24	4	28	325	370	400	23	12	14.08

[TECHNICAL DATA]

CTY XNK HUY PHAT
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BS 4504 - BS10K

Size	D	B (t + f)		d1	d3	Bolting			U. WEIGH T
		t	f			K	Dia. Of Holes	Numbers - Size	
DN15	95	10	1.5	22	50	65	4	14	(WSS/PC)
DN20	105	10	1.5	27	59	75	4	14	0.62
DN25	115	10	1.5	34	69	85	4	14	0.81
DN32	135	11	1.5	43	81	100	4	18	1.24
DN40	145	11	1.5	49	90	110	4	18	1.41
DN50	155	12	1.5	61	105	125	4	18	1.66
DN65	180	12	1.5	76	110	145	4	18	2.19
DN80	195	13	1.5	90	125	160	4	18	2.65
DN100	215	13	1.5	116	150	180	4	18	2.90
DN125	245	14	2	142	178	210	8	18	3.82
DN150	280	17	1.5	170	205	240	8	23	5.47
DN200	335	17	1.5	222	250	295	8	23	7.01
DN250	390	17	2	275	325	350	12	23	8.56
DN300	440	18	2	328	375	400	12	23	10.19

BS 4504 - BS5K

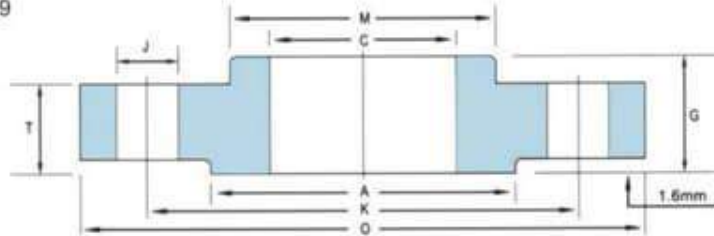
Size	D	B (t + f)		d1	d3	Bolting			U. WEIGH T
		t	f			K	Dia. Of	Numbers - Size	
DN15	80	8	1	21	40	55	12	4	0.30
DN20	90	8	1	27	50	65	12	4	0.38
DN25	100	8	1	34	60	75	12	4	0.46
DN32	125	8	1	43	76	98	17	4	0.70
DN40	135	8	1	49	86	108	17	4	0.81
DN50	150	8	1	61	98	123	17	4	0.98
DN65	170	9	1	76	118	143	17	4	1.35
DN80	185	9	1	90	133	158	17	4	1.54
DN100	205	10	1	116	153	178	17	8	1.78
DN125	235	11	1	142	183	208	17	8	2.42
DN150	270	12	1	170	208	238	22	8	3.21
DN200	325	13	1	220	263	293	22	8	4.60
DN250	380	15	2	275	318	348	22	12	6.59
DN300	430	16	2	326	385	398	22	12	8.07

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METAL PRODUCTS CO.,LTD.

FORGED FLANGE
ASTM A 105 ANSI B16.9

CTY XNK HUY PHÁT
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150LBS SORF												
NOMINAL PIPE SIZE		OUTER DIA O (mm)	OUTER DIA C (mm)	THICK-NESS T (mm)	TOTAL THICK-NESS G (mm)	DIA.OF HUB at BASE M (mm)	DIA.OF RAISED FACE A (mm)	NO.OF BOLT HOLES	NO.OF BOLT HOLES J (mm)	DIA.OF BOLT CIRCLE K (mm)	APPROXIMATE WEIGHT (kg)	
mm	Inch										SORF	BLIND
15	1/2	89	22.3	11.1	16	30.2	34.9	4	15.9	60.3	0.5	0.5
20	3/4	98	27.7	12.7	16	38.1	42.9	4	15.9	69.9	0.9	0.9
25	1	108	34.5	14.3	17	49.2	50.8	4	15.9	79.4	0.9	0.9
32	1 1/4	117	43.2	15.9	21	57.7	63.5	4	15.9	88.9	1.4	1.4
40	1 1/2	127	49.5	17.5	22	65.1	73.0	4	15.9	98.4	1.4	1.80
50	2	152	62.0	19.1	25	77.6	92.1	44	19.1	120.7	2.3	2.3
65	2 1/2	178	74.7	22.2	29	90.5	104.8	4	19.1	139.7	3.2	3.2
80	3	191	90.7	23.8	30	107.9	127.0	4	19.1	152.4	3.6	4.10
100	4	229	116.1	23.8	33	134.9	157.2	8	19.1	190.5	5.9	7.70
125	5	254	143.8	23.8	37	163.5	185.7	8	22.2	215.9	6.8	9.1
150	6	279	170.7	25.4	40	192.1	215.9	8	22.2	241.3	8.6	11.8
200	8	343	221.5	28.6	44	246.1	269.9	8	22.2	298.5	13.6	20.4
250	10	406	276.3	30.2	49	304.8	323.8	12	25.4	362.0	19.5	31.8
300	12	483	327.1	31.8	56	365.1	381.0	12	25.4	431.8	29.0	49.9
350	14	533	359.2	34.9	57	400.0	412.8	12	28.6	476.3	41	63.5
400	16	597	410.5	36.5	64	457.2	469.9	16	28.6	539.8	44.5	81.6
450	18	635	461.8	39.7	68	504.8	533.4	16	31.8	577.9	59.0	99.8
500	20	699	513.1	42.9	73	558.8	584.2	20	31.8	635.0	75.0	129
600	24	813	615.9	47.6	83	663.6	692.2	20	34.9	749.3	99.8	195

NOMINAL SIZE DN	SOCKET		HALF SOCKET	
	MINIMUM OUTSIDE DIA. A (mm)	OVERALL LENGTH B (mm)	MINIMUM OUTSIDE DIA. C (mm)	OVERALL LENGTH D (mm)
6	15.0	17	15.0	8
8	18.5	25	18.5	11
10	21.3	26	21.3	12
15	26.6	34	26.6	16
20	31.8	38	31.8	17
25	38.5	43	39.5	20
32	48.3	48	48.3	22
40	54.5	48	54.5	22
50	66.2	55	68.0	26
65	82.0	65	84.2	30
80	95	71	98.4	34
100	121.4	83	124.0	40
125	146.3	92	149.0	44
150	173.3	92	177.0	44

