

众志成城 共铸辉煌  
Unity Together, Create Prosperity

# TIANJIN XINYUE STEEL GROUP

## Tianjin Xinyue Steel Group

HQ: Daqizhuang Industrial Area, Jinghai County, Tianjin, China, PC 301606

Tel: +86-731-89702576, 89702588, 89702596

Fax: +86-731-89702588

Mail: sales@xysteelpipe.com

URL: www.xysteelpipe.com



天津信跃钢铁集团

天津信跃 成就卓越

Tianjin Xinyue makes excellence

# XINYUE STEEL YOUR BEST CHOICE WITH ONE-STOP SOLUTION OF STEEL PIPE

信跃文化  
XINYUE CULTURE

## Xinyue Principle 信跃信条

诚信为本 客户至上 质量为先

Credit-Based, Customer First, High Quality, High efficiency.

## Xinyue Vision 信跃愿景

成为全球领先、专业的管道（钢管、焊管、镀锌管、球墨管），

Advance Customer Value with Best Price, Good Quality, First-class Service, Fast Delivery.

## Xinyue Goal 信跃目标

信跃钢铁 与您共赢，共同成长

You and Xinyue Steel, Hand in Hand, Make Great Success.



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## 公司简介

天津信跃钢铁集团位于天津市大邱庄工业区，东临天津港，是中国主要的大型钢管管件企业之一，集钢管和管件生产，库存，国内外销售为一体。竭诚为客户打造最优的钢管管件品牌：“价格最优，质量最优，交期最优，服务最优”。

公司引进了国内外先进的技术及生产设备，在专业的工程师团队和生产部门引领下，时刻谨遵严格的ISO质量管理体系及各国生产标准规范，以确保产品的高质量。

公司始终坚持“诚信为本，客户至上，高质高效”的理念，以最好的服务回报客户，力求客户满意率100%。

集团下属的出口公司-天津信跃工贸有限公司，主要负责集团的钢管出口业务，产品出口辐射范围包括南美，北美，中东，东南亚，非洲等地，已取得国内外广大客户的一致好评。欢迎来到信跃！

## INTRODUCTION

Tianjin Xinyue Steel Group, located in Daqiu Zhuang Industrial Area, Tianjin, China, is one of the most famous enterprises of steel pipe fittings in China, consolidating steel pipe fitting production, stocking, domestic & international marketing. Our aim is creating the best corporation visualization for customer with "Best Price, High Quality, Fast Delivery, First-Class Service".

Xinyue use domestic & international advance technology equipment, production and inspection facilities, our factory is strictly following up ISO quality management system and international standard & regulation under the leadership of professional engineers and production team.

Xinyue Steel Group always insist on the principle of "Credit-Based, Customer First, High Quality, High Efficiency", pursuing 100% customer satisfaction.

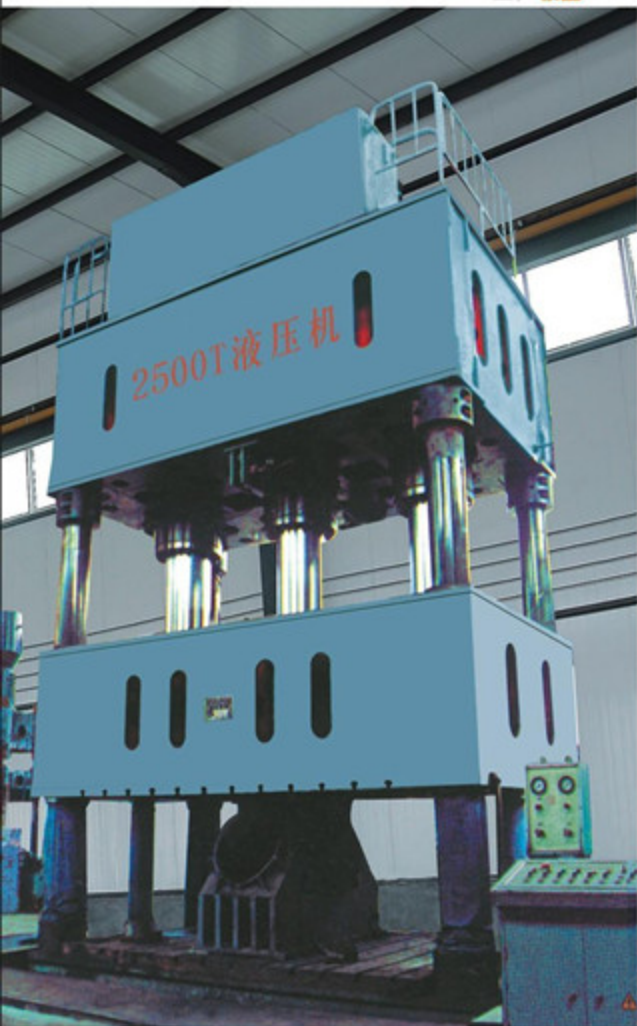
Tianjin Xinyue Industrial and Trade Co., Ltd as a subsidiary under the group, is mainly responsible for the exporting business of the group. Our sales market is spreading all over the world, such as South America, North America, Mid-east, Southeast Asia, Africa and so on, obtaining a good reputation among customers.

Welcome to Xinyue!

Xinyue Steel, Your best choice with one-stop solution steel pipe.

## PRODUCTION EQUIPMENT

生产设备



2500吨液压机，可承接加工  
焊接弯头口径至  $\phi 2600\text{mm}$

Hydraulic pressure machine  
of 2500,000kilograms that  
can be used to process the  
jointing of elbow with a maxim-  
um 2600mm caliber

Heat treatment furnace  
热处理炉



抛丸机 Shot-blasting machine

## PRODUCTION EQUIPMENT

生产设备

大型弯管机  
Large-scale bend machine



推制机 Extruding machine



高速自动弯管机  
High-speed automatic  
bending machine



锯床

## DETECTING EQUIPMENT



direct reading spectrometer 直读光谱仪



Thickness tester 测厚仪



Balance 天平



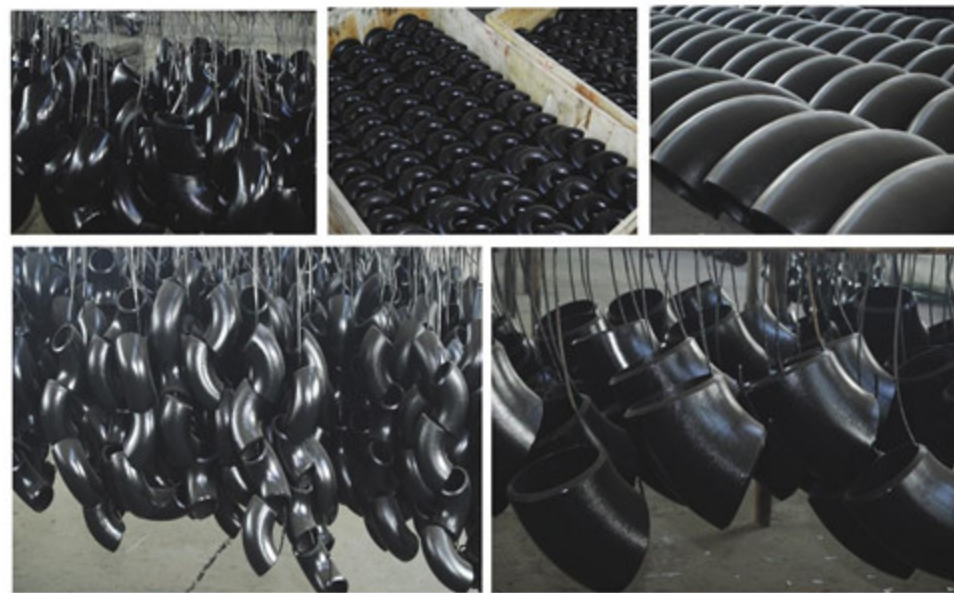
Manganese phosphorus silicon chemical analyser  
锰磷硅化学分析仪



Physical & Chemical Testing  
理化实验

## EXPORT PRODUCTS SERIES

出口系列产品



PIPE FITTINGS SERIES PRODUCT

管件系列产品



不锈钢管件系列 stainless steel fitting series



承插管件系列产品 FAUCET PIPE FITTINGS PRODUCTS SERLES

IMPORT AND EXPORT TRANSPORT SCENE

进出口运输场景



IMPORT AND EXPORT CENE  
IMPORT AND EXPORT CENE  
进出口场景





# [TECHNICAL DATA]

METAL PRODUCTS CO.,LTD.

## Wall Thickness Schedules(JIS and DIN)

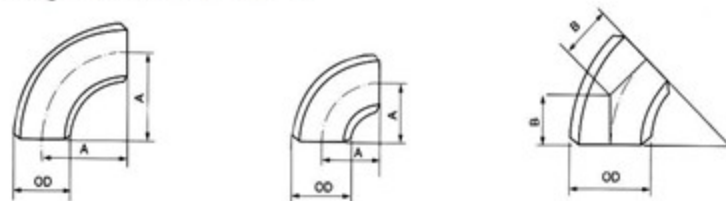
JIS G3452 JIS G3454 JIS G3457

Nominal pipe size(NPS)		Outside Diameter	SGP		LG		STD		XS	
A	B	JIS	WT	ID	WT	ID	WT	ID	WT	ID
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	-	-	-

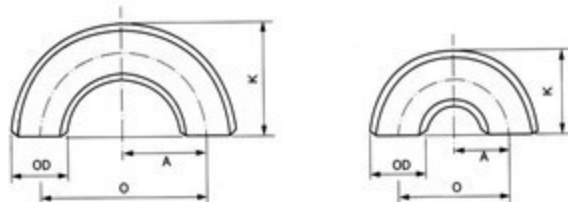
## Wrought Steel Butt Welding Fittings(ASME) Long and Short Radius Elbows



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	2.50	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

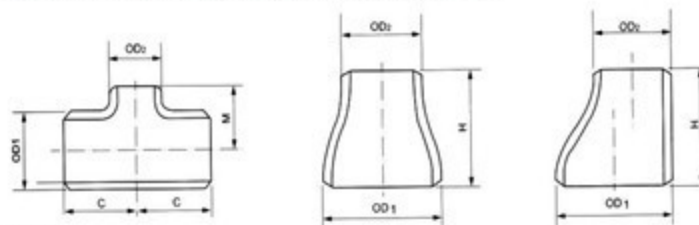
**Wrought Steel Butt Welding Fittings(ASME)  
Long and Short Radius Returns**



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

**Wrought Steel Butt Welding Fittings(ASME)  
Reducing Tees and Concentric & Eccentric Reducers**

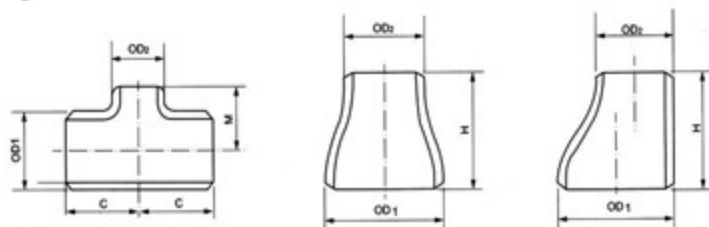


ASME B16.9

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
1/2 x 1/2	1.05	26.7	0.84	21.3	1.12	29	1.12	29	1.5	38
1 x 1/2	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 1/2 x 1	1.66	42.2	1.32	33.4	1.66	48	1.66	48	2	51
1 1/2 x 1	1.66	42.2	1.05	26.7	1.66	48	1.66	48	2	51
1 1/2 x 1	1.66	42.2	0.84	21.3	1.66	48	1.66	48	2	51
1 1/2 x 1 1/2	1.9	48.3	1.66	42.2	2.25	57	2.25	57	2.5	64
1 1/2 x 1 1/2	1.9	48.3	1.32	33.4	2.25	57	2.25	57	2.5	64
1 1/2 x 1 1/2	1.9	48.3	1.05	26.7	2.25	57	2.25	57	2.5	64
1 1/2 x 1 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 1/2	2.38	60.3	1.66	42.2	2.5	64	2.25	57	3	76
2 x 1 1/2	2.38	60.3	1.32	33.4	2.5	64	2	51	3	76
2 x 1 1/2	2.38	60.3	1.05	26.7	2.5	64	1.75	44	3	76
2 x 1 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 1/2	2.88	73	1.66	42.2	3	76	2.5	64	3.5	89
2 1/2 x 1 1/2	2.88	73	1.32	33.4	3	76	2.25	57	3.5	89
2 1/2 x 1 1/2	2.88	73	1.05	26.7	3	76	-	-	3.5	89
2 1/2 x 1 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 1/2	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 1/2	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 1/2	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 1/2	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

# 【TECHNICAL DATA】

## Wrought Steel Butt Welding Fittings(ASME) Reducing Tees and Concentric & Eccentric Reducers



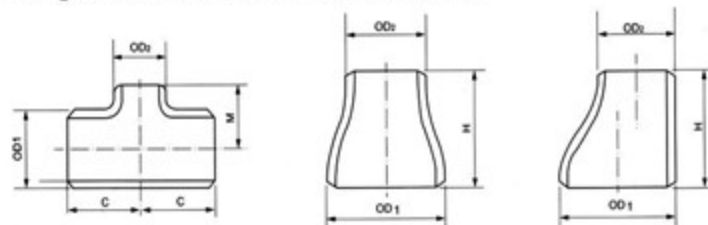
ASME B16.9

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
5X4	5.56	141.3	4.5	114.3	4.88	124	4.62	117	5	127
5X3½	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
5X2½	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
5X1½	5.56	141.3	1.9	48.3	4.88	124	*	*	5	127
5X1¼	5.56	141.3	1.66	42.2	4.88	124	*	*	5	127
6X5	6.62	168.3	4.56	114.3	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
6X3½	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
6X2½	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
8X3½	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	366
16X12	16	406.4	12.75	323.8	12	305	11.62	295	14	366
16X10	16	406.4	10.75	273	12	305	11.12	283	14	366
16X8	16	406.4	8.62	219.1	12	305	10.75	273	14	366
16X6	16	406.4	6.62	168.3	12	305	10.38	264	14	366
18X16	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.

## Wrought Steel Butt Welding 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 X 14	18	457	14	355.6	13.5	343	13	330	15	381
18 X 12	18	457	12.75	323.8	13.5	343	12.62	321	15	381
18 X 10	18	457	10.75	273	13.5	343	12.12	308	15	381
18 X 8	18	457	8.62	219.1	13.5	343	11.75	298	15	381
20 X 18	20	508	16	406.4	15	381	14.5	369	20	508
20 X 16	20	508	16	406.4	15	381	14	356	20	508
20 X 14	20	508	14	355.6	15	381	14	356	20	508
20 X 12	20	508	12.75	323.8	15	381	13.62	346	20	508
20 X 10	20	508	10.75	273	15	381	13.12	333	20	508
20 X 8	20	508	8.62	219.1	15	381	12.75	324	20	508
22 X 20	22	559	20	508	16.5	419	16	406	20	508
22 X 18	22	559	18	457.2	16.5	419	15.5	394	20	508
22 X 16	22	559	16	406.4	16.5	419	15	391	20	508
22 X 14	22	559	14	355.6	16.5	419	15	391	20	508
22 X 12	22	559	12.75	323.8	16.5	419	14.62	371	20	508
22 X 10	22	559	10.75	273	16.5	419	14.12	359	20	508
24 X 22	24	610	22	558.8	17	432	17	432	20	508
24 X 20	24	610	20	508	17	432	17	432	20	508
24 X 18	24	610	18	457.2	17	432	16.5	419	20	508
24 X 16	24	610	16	406.4	17	432	16	406	20	508
24 X 14	24	610	14	355.6	17	432	16	406	20	508
24 X 12	24	610	12.75	323.8	17	432	15.62	397	20	508
24 X 10	24	610	10.75	273	17	432	15.12	384	20	508
26 X 24	26	660	24	609.6	19.5	495	19	483	24	610
26 X 22	26	660	22	558.6	19.5	495	18.5	470	24	610
26 X 20	26	660	20	508	19.5	495	18	457	24	610
26 X 18	26	660	18	457.2	19.5	495	17.5	444	24	610
26 X 16	26	660	16	406.4	19.5	495	17	432	24	610
26 X 14	26	660	14	355.6	19.5	495	17	432	24	610
26 X 12	26	660	12.75	323.8	19.5	495	16.62	422	24	610
28 X 26	28	711	26	660.4	20.5	52	20.5	521	24	610
28 X 24	28	711	24	609.6	20.5	152	20	508	24	610
28 X 22	28	711	22	558.8	20.5	152	19.5	495	24	610
28 X 20	28	711	20	508	20.5	1521	19	483	24	610
28 X 18	28	711	18	457.2	20.5	521	18.5	470	24	610
28 X 16	28	711	16	406.4	20.5	521	18	457	24	610
28 X 14	28	711	14	355.6	20.5	521	18	457	24	610
28 X 12	28	711	12.75	323.8	20.5	521	17.62	448	24	610
30 X 28	30	762	28	711.2	22	559	21.5	546	24	610

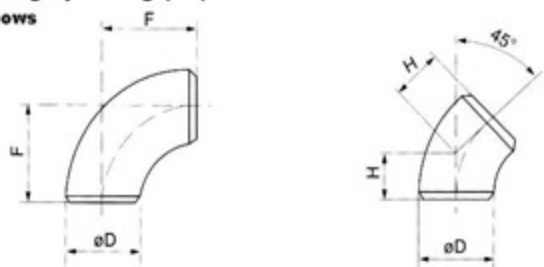
NOTE:

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

# [ TECHNICAL DATA ]

## Steel Butt-Welding Pipe Fittings(JIS)

### 90° & 45° Elbows



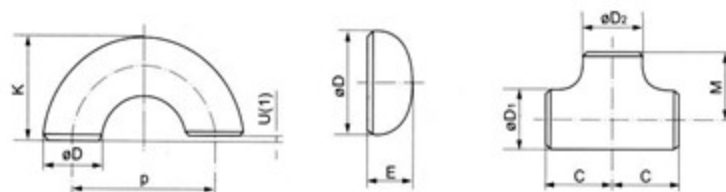
JIS B2311

Unit:mm

Nominal pipe size(NPS)		Outside Diameter D	Center-to-End		Center-to-End	
A	B		90° Elbows(F)		45° Elbows(H)	
			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 3/4	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	1295.4	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
2000	48	1219.2	1828.8	1219.2	757.5	505.1

## Steel Butt-Welding Pipe Fittings(JIS)

### 180° Elbows,Caps,&Tees



JIS B2311

Unit:mm

Nominal pipe size (NPS)		Outside Diameter D	Center to Center		End-to-End		Center-to-End		
A	B		180° Elbows(P)		180° Elbows(K)		Caps		
			Long	Short	Long	Shot	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 1/2	42.7	95.2	63.6	69.0	53.2	38.1	47.6	47.6
40	1 3/4	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

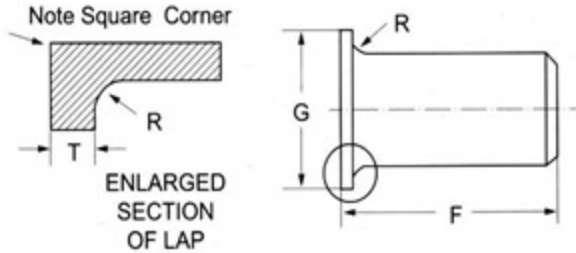
NOTE:

(1) For alignment of the end faces U see the table on page 38.

(2) Only SGP is applicable to the dimension E.

# [TECHNICAL DATA]

## Steel Butt-Welding Pipe Fittings(JIS) Lap Joint Stub Ends

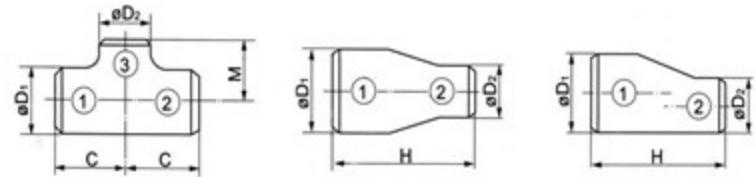


JIS B2220  
JPI-7S-15

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	-

## Steel Butt-Welding Pipe Fittings(JIS) Reducing Tees and Concentric & Eccentric Reducers



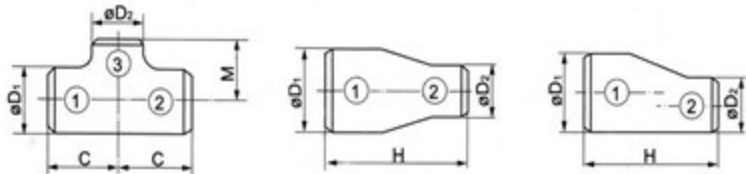
JIS B2311

Unit:mm

Nominal Pipe Size(NPS)		Outside Diameter		Reducing Tees		Reducers
A	B	D <sub>1</sub>	D <sub>2</sub>	Center-to-End		End-to-End
				C	M	H
20X15	1/2 X 3/4	27.2	21.7	28.6	28.6	38.1
25X20	1 X 1 1/4	34.0	27.2	38.1	38.1	50.8
25X15	1 X 1/2	34.0	21.7	38.1	38.1	50.8
32X25	1 1/4 X 1	42.7	34.0	47.6	47.6	50.8
32X20	1 1/4 X 1 1/2	42.7	27.2	47.6	47.6	50.8
32X15	1 1/4 X 1/2	42.7	21.7	47.6	47.6	50.8
40X32	1 1/2 X 1 1/4	48.6	42.7	57.2	57.2	63.5
40X25	1 1/2 X 1	48.6	34.0	57.2	57.2	63.5
40X20	1 1/2 X 1 1/2	48.6	27.2	57.2	57.2	63.5
40X15	1 1/2 X 1/2	48.6	21.7	57.2	57.2	63.5
50X40	2 X 1 1/2	60.5	48.6	63.5	60.3	76.2
50X32	2 X 1 1/4	60.5	42.7	63.5	57.2	76.2
50X25	2 X 1	60.5	34.0	63.5	50.8	76.2
50X20	2 X 1/2	60.5	27.2	63.5	44.5	76.2
50X15	2 X 1/4	60.5	21.7	63.5	*	76.2
65X50	2 1/2 X 2	76.3	60.5	76.2	69.9	88.9
65X40	2 1/2 X 1 1/2	76.3	48.6	76.2	68.7	88.9
65X32	2 1/2 X 1 1/4	76.3	42.7	76.2	63.5	88.9
65X25	2 1/2 X 1	76.3	34.0	76.2	57.2	88.9
65X20	2 1/2 X 1/2	76.3	27.2	76.2	*	88.9
65X15	2 1/2 X 1/4	76.3	21.7	76.2	*	88.9
80X65	3 X 2 1/2	89.1	76.3	85.7	82.6	88.9
80X50	3 X 2	89.1	60.5	85.7	76.2	88.9
80X40	3 X 1 1/2	89.1	48.6	85.7	73.0	88.9
80X32	3 X 1 1/4	89.1	42.7	85.7	69.9	88.9
80X25	3 X 1	89.1	34.0	85.7	*	88.9
80X20	3 X 1/2	89.1	27.2	85.7	*	88.9
80X15	3 X 1/4	89.1	21.7	85.7	*	88.9
90X80	3 1/2 X 3	101.6	89.1	95.3	92.1	101.6
90X65	3 1/2 X 2 1/2	101.6	76.3	95.3	88.9	101.6
90X50	3 1/2 X 2	101.6	60.5	95.3	82.9	101.6
90X40	3 1/2 X 1 1/2	101.6	48.6	95.3	79.4	101.6
90X32	3 1/2 X 1 1/4	101.6	42.7	95.3	*	101.6
100X90	4 X 3 1/2	114.3	101.6	104.8	101.6	101.6
100X80	4 X 3	114.3	89.1	104.8	98.4	101.6
100X65	4 X 2 1/2	114.3	76.3	104.8	95.3	101.6
100X50	4 X 2	114.3	60.5	104.8	88.9	101.6
100X40	4 X 1 1/2	114.3	48.6	104.8	85.7	101.6
100X32	4 X 1 1/4	114.3	42.7	104.8	*	101.6
100X25	4 X 1	114.3	34.0	104.8	*	101.6

# 【TECHNICAL DATA】

## Steel Butt-Welding Pipe Fittings(JIS) Reducing Tees and Concentric & Eccentric Reducers

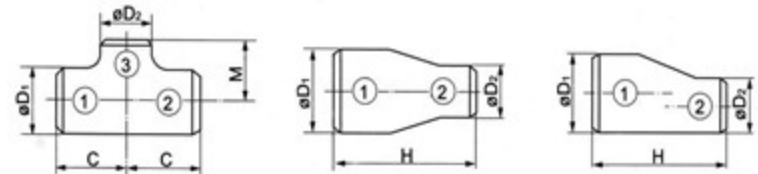


JIS B2311

Unit:mm

Nominal Pipe Size(NPS)		Outside Diameter		Reducing Tees		Reducers
A	B	D <sub>1</sub>	D <sub>2</sub>	Center-to-End	End-to-End	End-to-End
A	B	D <sub>1</sub>	D <sub>2</sub>	C	M	H
125X100	5X4	139.8	114.3	123.8	117.5	127.0
125X90	5X3 1/2	139.8	101.6	123.8	114.3	127.0
125X80	5X3	139.8	89.1	123.8	111.1	127.0
125X65	5X2 1/2	139.8	76.3	123.8	108.0	127.0
125X50	5X2	139.8	60.5	123.8	104.8	127.0
125X40	5X1 1/2	139.8	48.6	123.8	*	127.0
125X32	5X1 1/4	139.8	42.7	123.8	*	127.0
150X125	6X5	165.2	139.8	142.9	136.5	139.7
150X100	6X4	165.2	114.3	142.9	130.2	139.7
150X90	6X3 1/2	165.2	101.6	142.9	127.0	139.7
150X80	6X3	165.2	89.1	142.9	123.8	139.7
150X65	6X2 1/2	165.2	76.3	142.9	120.7	139.7
150X50	6X2	165.2	60.5	142.9	*	139.7
200X150	8X6	216.3	165.2	177.8	168.3	152.4
200X125	8X5	216.3	139.8	177.8	161.9	152.4
200X100	8X4	216.3	114.3	177.8	155.6	152.4
200X90	8X3 1/2	216.3	101.6	177.8	152.4	152.4
200X80	8X3	216.3	89.1	177.8	152.4	152.4
250X200	10X8	267.4	216.3	215.9	203.2	177.8
250X150	10X6	267.4	165.2	215.9	193.7	177.8
250X125	10X5	267.4	139.8	215.9	190.5	177.8
250X100	10X4	267.4	114.3	215.9	184.2	177.8
250X80	10X3	267.4	89.1	215.9	*	177.8
300X250	12X10	318.5	267.4	254.0	241.3	203.2
300X200	12X8	318.5	216.3	254.0	228.6	203.2
300X150	12X6	318.5	165.2	254.0	29.1	203.2
300X125	12X5	318.5	139.8	254.0	215.9	203.2
300X100	12X4	318.5	114.3	254.0	*	203.2
350X300	14X12	355.6	318.5	279.4	269.9	330.2
350X250	14X10	355.6	267.4	279.4	257.2	330.2
350X200	14X8	355.6	216.3	279.4	247.7	330.2
350X150	14X6	355.6	165.2	279.4	238.1	330.2
350X125	14X5	355.6	139.8	279.4	*	330.2
400X350	16X14	406.4	355.6	304.8	304.8	355.6
400X300	16X12	406.4	318.5	304.8	295.3	355.6
400X250	16X10	406.4	267.4	304.8	282.6	355.6
400X200	16X8	406.4	216.3	304.8	273.1	355.6
400X150	16X6	406.4	165.2	304.8	263.5	355.6

## Steel Butt-Welding Pipe Fittings(JIS) Reducing Tees and Concentric & Eccentric Reducers



JIS B2311

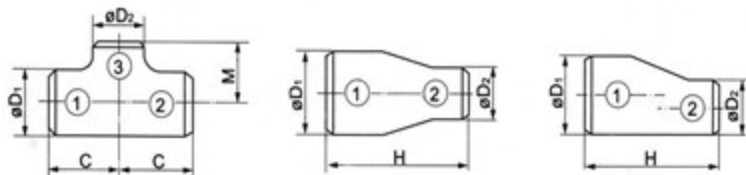
Unit:mm

Nominal Pipe Size(NPS)		Outside Diameter		Reducing Tees		Reducer
A	B	D <sub>1</sub>	D <sub>2</sub>	Center-to-End	End-to-End	End-to-End
A	B	D <sub>1</sub>	D <sub>2</sub>	C	M	H
450X400	18X16	457.2	406.4	342.9	330.2	381.0
450X350	18X14	457.2	355.6	342.9	330.2	381.0
450X300	18X12	457.2	318.5	342.9	320.7	381.0
450X250	18X10	457.2	267.4	342.9	308.0	381.0
450X200	18X8	457.2	216.3	342.9	298.0	381.0
500X450	20X18	508.0	457.2	381.0	368.3	508.0
500X400	20X16	508.0	406.4	381.0	355.6	508.0
500X350	20X14	508.0	355.6	381.0	355.6	508.0
500X300	20X12	508.0	318.5	381.0	346.1	508.0
500X250	20X10	508.0	267.4	381.0	333.4	508.0
500X200	20X8	508.0	216.3	381.0	523.9	508.0
550X500	22X20	558.8	508.0	419.1	406.4	508.0
550X450	22X18	558.8	457.2	419.1	393.7	508.0
550X400	22X16	558.8	406.4	419.1	381.0	508.0
550X350	22X14	558.8	355.6	419.1	381.0	508.0
600X550	24X22	609.6	558.8	431.8	431.8	508.0
600X500	24X20	609.6	508.0	431.8	431.8	508.0
600X450	24X18	609.6	457.2	431.8	419.1	508.0
600X400	24X16	609.6	406.4	431.8	406.4	508.0
600X350	24X14	609.6	355.6	431.8	406.4	508.0
600X300	24X12	609.6	318.5	431.8	397.0	508.0
650X600	26X24	660.4	609.6	495.3	482.6	609.6
650X550	26X22	660.4	558.8	495.3	469.9	609.6
650X500	26X20	660.4	508.0	495.3	457.2	609.6
650X450	26X18	660.4	457.2	495.3	440.0	609.6
700X650	28X26	711.2	660.4	520.7	520.7	609.6
700X600	28X24	711.2	609.6	520.7	508.0	609.6
700X550	28X22	711.2	558.8	520.7	495.3	609.6
700X500	28X20	711.2	508.0	520.7	483.0	609.6
750X700	30X28	762.0	711.2	558.8	546.1	609.6
750X650	30X26	762.0	660.4	558.8	546.1	609.6
750X600	30X24	762.0	609.6	558.8	533.4	609.6
750X550	30X22	762.0	558.8	558.8	520.7	609.6
800X750	32X30	812.8	762.0	596.9	584.2	609.6
800X700	32X28	812.8	711.2	596.9	571.5	609.6
800X650	32X26	812.8	660.4	596.9	571.5	609.6
800X600	32X24	812.8	609.6	596.9	559.0	609.6

# [TECHNICAL DATA]

## Steel Butt-Welding Pipe Fittings(JIS)

### Reducing Tees and Concentric & Eccentric Reducers



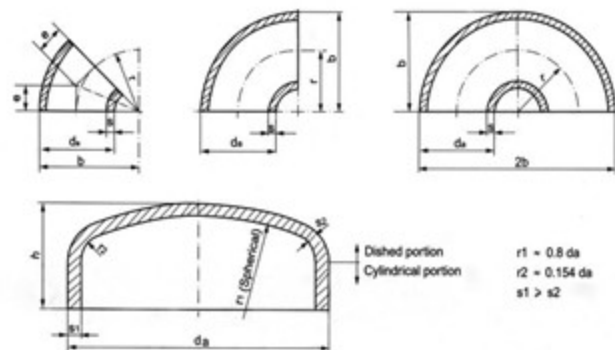
JISB2311

Unit:mm

Nominal Pipe Size(NPS)		Outside Diameter		Reducing Tees		Reducers
A	B	D <sub>1</sub>	D <sub>2</sub>	Center-to-End		End-to-End
				C	M	H
850×800	34×32	863.6	812.8	635.0	622.3	609.6
850×750	34×30	863.6	762.0	635.0	609.6	609.6
850×700	34×28	863.6	711.2	635.0	596.9	609.6
850×650	34×26	863.6	660.4	635.0	596.9	609.6
900×850	36×34	914.4	863.6	673.1	660.4	609.6
900×800	36×32	914.4	812.8	673.1	647.7	609.6
900×750	36×30	914.4	762.0	673.1	635.0	609.6
900×700	36×28	914.4	711.2	673.1	622.3	609.6
950×900	38×36	965.2	914.4	711.2	711.2	609.6
950×850	38×34	965.2	863.6	711.2	698.5	609.6
950×800	38×32	965.2	812.8	711.2	685.8	609.6
950×750	38×30	965.2	762.0	711.2	673.0	609.6
1000×950	40×38	1016.0	965.2	749.3	749.3	609.6
1000×900	40×36	1016.0	914.4	749.3	736.6	609.6
1000×850	40×34	1016.0	863.6	749.3	723.9	609.6
1000×800	40×32	1016.0	812.8	749.3	711.2	609.6
1050×1000	42×40	1066.8	1016.0	762.0	711.2	609.6
1050×950	42×38	1066.8	965.2	762.0	711.2	609.6
1050×900	42×36	1066.8	914.4	762.0	711.2	609.6
1050×850	42×34	1066.8	863.6	762.0	711.2	609.6
1100×1050	44×42	1117.6	1066.8	812.8	762.0	609.6
1100×1000	44×40	1117.6	1016.0	812.8	749.3	609.6
1100×950	44×38	1117.6	965.2	812.8	736.6	609.6
1100×900	44×36	1117.6	914.4	812.8	723.9	609.6
1150×1100	46×44	1168.4	1117.6	850.9	811.1	711.2
1150×1050	46×42	1168.4	1066.8	850.9	787.4	711.2
1150×1000	46×40	1168.4	1016.0	850.9	774.7	711.2
1150×950	46×38	1168.4	965.2	850.9	762.0	711.2
1200×1150	48×46	1219.2	1168.4	889.0	838.2	711.2
1200×1100	48×44	1219.2	1117.6	889.0	838.2	711.2
1200×1050	48×42	1219.2	1066.8	889.0	812.8	711.2
1200×1000	48×40	1219.2	1016.0	889.0	812.8	711.2

## Steel Butt-Welding Pipe Fittings(DIN)

### Elbows, Bends, and Caps

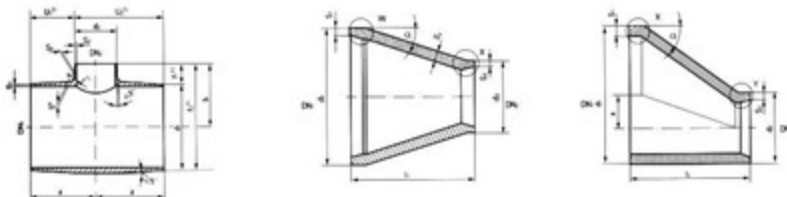


DIN 2605 DIN 2617

Unit:mm

Nominal Size DN	Outside Diameter da	Elbows and Bends						Caps h
		Type3-3D			Type5-5D			
		r	b	e	r	b	e	
15	21.3	26.0	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

**Steel Butt-welding Pipe Fittings(DIN)  
Tees and Concentric & Eccentric Reducers**

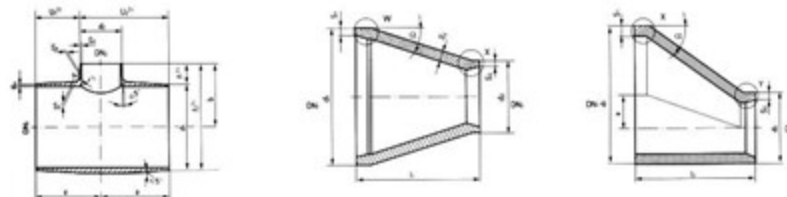


DN 2615 DIN2616

Unit:mm

Nominal Size DN1	Outside Diameter d1	Nominal Size DN2	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

**Steel Butt-welding Pipe Fittings (DIN)  
Tees and Concentric & Eccentric Reducers**



DIN 2615 DIN2616

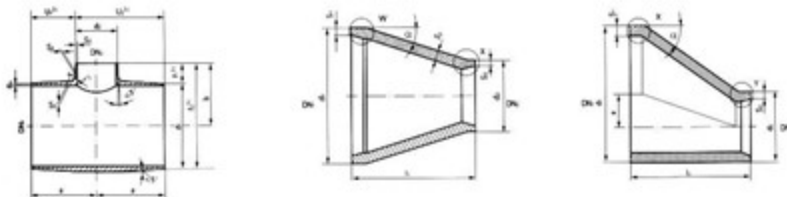
Unit:mm

Nominal Size DN1	Outside Diameter d1	Nominal Size DN2	Outside Diameter d2	Tees		Reducers
				a	b	l1
150	168.3	100	114.3	143	130	140
150	168.3	80	88.9	143	124	140
150	168.3	65	76.1	143	121	140
200	219.1	200	219.1	178	178	152
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
450	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



# [TECHNICAL DATA]

## Steel Butt-welding Pipe Fittings(DIN) Tees and Concentric & Eccentric Reducers

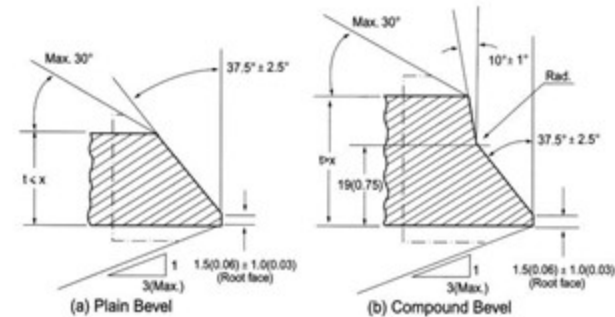


DIN 26 15 DIN2616

Unit mm

Nominal Size DN1	Outside Diameter d1	Nominal Size DN2	Outside Diameter d2	Tees		Reducers
				a	b	
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	500	508	673	584	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	1200	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

## Welding End Preparation ASME B16.9, B16.25



### Welding Bevels and Root Face

Nominal Wall Thickness, t	End Preparation
Less than x [Note]	Cuts square or slightly chamfer, at manufacturer's option. (Not illustrated.)
x to 22 (0.88)	Plain bevel as in sketch (a) above.
More than 22 (0.88)	Compound bevel as in sketch (b) above.

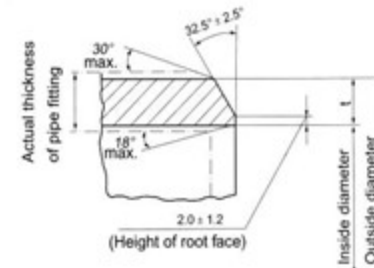
GENERAL NOTES: Dimensions in parentheses are in inches. Others are in Millimeters.

NOTE: X=5(0.19) for carbon steel or ferritic alloy steel

x=3(0.12) for austenitic alloy steel

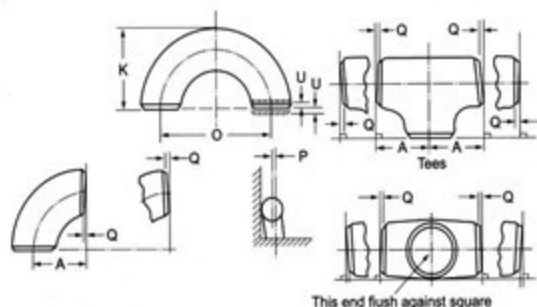
### JIS B2311

Unit mm



Shape and Dimensions of Bevel End

**Dimensional Tolerances(ASME)**



ASME B 9, B 16, 28

Pipe Size	All Fittings				90° & 45° Elbows and Tees		Reducers and Lap Joint Stub ends		Caps												
	Outside Diameter at Bevel, D(1)		Inside Diameter at End(1)		Center-to-End Dimensions A,B,C,M	Overall Length, F,H	IN	MM	Overall Length, E												
	IN	MM	IN	MM					IN	MM											
1/2-2 1/2	+0.06 -0.03	+1.6 -0.8	±0.03	±0.8	Not Less Than 87.5% of Nominal Thickness	±2	±2	±0.06	±2	±0.12	±3										
3-2 1/2	±0.06	±1.6	±0.06	±1.6						±0.09	±0.09	±0.09	±5	±0.25	±6						
4	+0.09 -0.06	+2.4 -1.6												±0.12	±3.2	±0.12	±3	±0.19	±5	±0.38	±10
5-8	+0.09 -0.06	+2.4 -1.6																		±0.19	±5
10-18	+0.16 -0.12	+4.0 -3.2	±0.19	±5						±0.19	±5	±0.38	±10								
20-24	+0.25 -0.19	+6.4 -4.8												±0.19	±5	±0.19	±5	±0.38	±10		
26-30			±0.19	±5	±0.19	±5	±0.38	±10													
32-48									±0.19	±5	±0.19	±5	±0.38	±10							

Pipe Size	Lap Joint Stub Ends(2)					180° Return Bends						
	Outside Diameter of Lap, G		Lap Thickness		Fillet Radius of Lap, R		Center-to-Center Dimension, O		Back-to-Face Dimension, K		Alignment of Ends, U	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
1/2-2 1/2					+0 -0.03	+0 -1	±0.25	±6	±0.25	±6	0.03	±1
3-2 1/2	+0	+0	+0.06	+1.6								
4	-0.03	-1	-0	-0								
5-8					+0 -0.06	+0 -2						
10-18	+0	+0	+0.12	+3.2								
20-24	-0.06	-2	-0	-0								

Pipe Size	Off Angle, Q		Off Plane, P	
	IN	MM	IN	MM
1/2-4	±0.03	±1	±0.06	±2
5-8	±0.06	±2	±0.12	±4
10-12			±0.19	±5
14-16	±0.09	±3	±0.25	±6
18-24	±0.12	±4	±0.38	±10
26-30			±0.50	±13
32-42	±0.19	±5	±0.75	±19
44-48				

NOTES:

- (1) Out-of-round is the sum of absolute values of plus and minus tolerances.
- (2) Outside diameter of barrel see the table on page 14.

**Dimensional Tolerances(MSS)**

MSSSP-43

Nominal Pipe Size	All Fittings		90° Elbows 45° Elbows Tees	Reducers Lap-Joint Stub Ends	180° Returns			Caps	Lap-Joint Stub Ends									
	Outside Diameter at Welding End(a)	Wall Thickness	Center-to-End A-B-C-M	Overall Length F-H	Center-to-Center O	Back-to-Face K	Alignment of Ends U	Overall Length E	Fillet(b) Radius of Lap A	Outside Diameter of Lap G								
1/2-1 1/4									+0 -0.03 (+0) (-0.8)									
2-3 1/2	±0.03 (±0.8)	Not less than 87.5% of nominal thickness	±0.06 (±1.6)	±0.25 (±6.4)	±0.03 (±0.8)	±0.25 (±6.4)	±0.25 (±6.4)	±0.12 (±3.2)	+0 -0.03 (+0) (-0.8)	+0 -0.03 (+0) (-0.8)								
4																		
5-8	+0.06 -0.03 (+1.6) (-0.8)																+0 -0.06 (+0) (-1.6)	
10-18	0.09 -0.03 (+2.4) (-0.8)																±0.25 (±6.4)	+0 -0.06 (+0) (-1.6)
20-24	+0.12 -0.03 (+3.2) (-0.8)																	

GENERAL NOTE:

All dimensions are in inches. Dimensions in brackets are in millimeters for reference only.

NOTES:

- (a) Out of roundness is the vector sum of plus and minus tolerance.
- (b) Fillet B radius is maximum. See page 17.

**Dimensional Tolerances(JIS)**

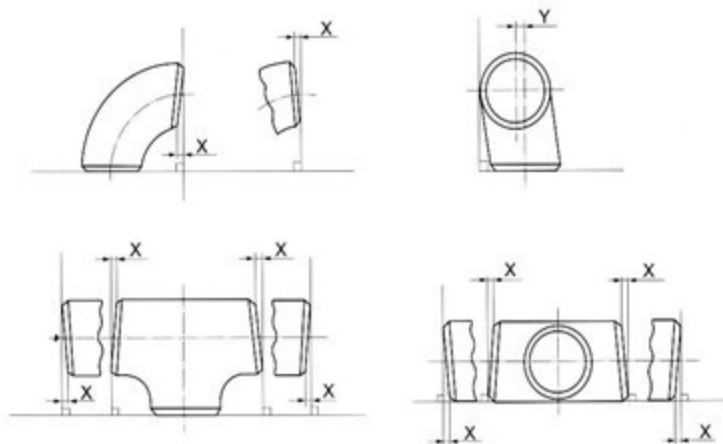
**JIS B2311**

Item	Types of pipe fittings	Nominal diameter								
		A	15~65 1/2~2 1/4	80~100	125~200	250~450	500~600	650~750	800~1200	
		B	1 1/2~2 1/4	3~4	5~8	10~18	20~24	26~30	32~48	
Tolerance										
Outside diameter at end	All types of pipe fittings	±2.0	±2.5	±3.5	+5.0 -4.5	+6.4 -4.8				
Inside diameter at end face						±4.5	±4.8			
Thickness	All types of pipe fittings	*Not specific -15%								
Bevel angle		See figure Shape and Dimensions of Bevel End on pipe								
Height of root face		See figure Shape and Dimensions of Bevel End on pipe								
Dimension from center line to end face(H,F)	45° elbows 90° elbows	±2.0	±3.2				±4.8			
Centerline dimension(P)	180° elbows	±6.4		±9.5		-				
Dimension from back to end face(K)		±6.4				-				
Alignment of end faces(U) (max.)		1.6	3.2		-					
Overall length(H)	Reducers	±2.0		±3.2		±4.8				
Dimension from center line to end face(C,M)	Tees	±2.0		±3.2		±4.8				
Dimension from back to end face(E)	Caps	±3.2		±6.4		-				
Outer peripheral length at end	All types of pipe fittings	-				±0.5%				

Remarks 1 For the dimensional tolerances for H of reducer and M of reduced tee, the tolerances specified for larger diameter side shall apply.

2 For the galvanized part of white pipe fittings, the above-mentioned tolerance shall be applied before galvanizing.

**Dimensional Tolerances(JIS)**



**JIS B2311**

Item	Types of pipe fitting	Nominal diameter								
		A	15~100	125~200	250~300	350~400	450~600	650~750	800~1050	1100~1200
		B	1 1/2~4	5~8	10~12	14~16	18~24	26~30	32~42	44~48
Tolerance										
Off angle(X)	Elbows, reducers, tees	0.8	1.6	2.4		3.2		4.8		
Off plane(Y)	Elbows, tees	1.6	3.2	4.8	6.4	9.5		12.7	19.1	

Remarks 1 For the tolerances on alignment of reducer and reduced tee, the tolerances specified for larger diameter side shall apply.

2 For the galvanized part of white pipe fittings, the above-mentioned tolerance shall be applied before galvanizing.

# 【TECHNICAL DATA】

## 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	0.30-0.80	0.030	0.030	0.50-1.00	1.00-1.50	0.44-0.65	-	-	-	-
WP11 CL2	0.05-0.20	0.30-0.80	0.040	0.040	0.50-1.00	1.00-1.50	0.44-0.65	-	-	-	-
WP11 CL3											

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

	Wall thickness		Elongation Requirements	
	in	mm	Longitudinal	Transverse
			22	14

#### Standard round specimen, or small proportional specimen, min % in 4D

Rectangular Specimen for wall thickness  $\geq 0.312$  in [7.94mm] and over, and for all small sizes tested in full section; min % in 2 in [50mm]

Rectangular Specimen for wall thickness less than 0.312 in [7.94mm], min % in 2 in [50mm] (0.5 in [12.7mm] wide specimen)

$\geq 0.312$	$\geq 7.94$	30	20
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 2 in [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 Strength	Yield Point	Elongation%(1)	
	C	p	S			Longitudinal	Transverse
	Max			N/mm <sup>2</sup> Min	Min	Min	
SGP	-	0.040	0.040	290	-	30 <sub>a</sub>	25 <sub>a</sub>
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 <sub>a</sub>
St 37.0	R	0.17	-	-	0.040	0.040	0.009 <sub>a</sub>
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 <sub>a</sub> %
C	0.02	$\leq 0.24$	$\pm 0.02$
Si	-	$\leq 0.35$	$\pm 0.03$
Mn	-	$\leq 1.00$	$\pm 0.04$
P	0.010	$\leq 0.040$	$\pm 0.010$
S	0.010	$\leq 0.040$	$\pm 0.010$
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 Min J
	ReH $\leq 16$	16 < ReH $\leq 40$	40 < ReH $\leq 60$		Longitudinal	Transverse	
	Min N/mm <sup>2</sup>			Min %		Min J	
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/mm<sup>2</sup> is permitted.

# [TECHNICAL DATA]

## MILD STEEL PLATE FLANGE DIN

PN10 PL FF (NP 10kg/cm <sup>2</sup> )									
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	85	22.0	14	4	14	65	0.87	
20	3/4	105	27.8	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	1.82	
40	1 1/2	150	49.0	16	4	18	110	1.98	
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	5.48	
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 <sup>2</sup> )									
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	85	22.0	14	4	14	65	0.87	0.71
20	3/4	105	27.8	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	16	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	4	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	28	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	34	20	30	585	41.67	91.74
500	20	715	513.0	38	20	33	650	53.0	114.86
600	24	840	613.0	42	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	15.8	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 1/4	117	43.2	16	4	15.9	89.9	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	176	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	180.5	4.00	5.50
125	5	264	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 PLFF (16kg/cm <sup>2</sup> )									
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	22.2	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	80	1.13	
32	1 1/4	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	26	12	27	380	17.88	
300	12	480	321.0	30	16	27	460	21.42	
350	14	540	359.1	34	16	33	480	30.62	
400	16	605	409.0	36	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]

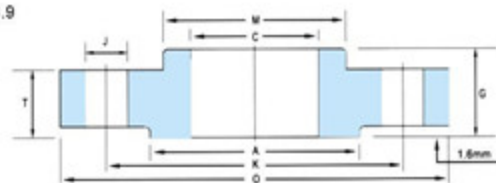
## MILD STEEL PLATE FLANGE JIS

JIS 5K PLFF (5kg/cm <sup>2</sup> )								
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	80	0.30
20	3/4	85	27.7	10	4	12	85	0.37
25	1	85	34.5	10	4	12	75	0.45
32	1 1/4	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	81.1	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	185	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	365	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



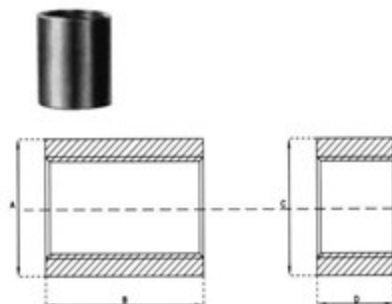
JIS 10K PLFF (10kg/cm <sup>2</sup> )								
NOMINAL PIPE SIZE		OUTER DIAMETER O (mm)	INTERNAL DIAMETER C (mm)	THICKNESS T (mm)	NO OF BOLT HOLES	DIAMETER OF BOLT HOLES J (mm)	DIAMETER OF BOLT HOLE K (mm)	APPROXIMATE WEIGHT (kg)
mm	Inch							FLAT FACE
15	1/2	85	22.2	12	4	15	70	0.57 0.61
20	3/4	100	27.7	14	4	15	75	0.73 0.79
25	1	125	34.5	14	4	19	90	1.13 1.24
32	1 1/4	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	165	81.1	18	4	19	120	1.88 2.23
65	2 1/2	175	77.1	18	4	19	140	2.60 3.298
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	550	409.0	28	16	27	510	23.24 52.13
450	18	620	460.0	30	20	27	565	29.26 69.4
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

## FORGED FLANGE ASTM A105 ANSI B16.9



150LBS SORF												
NOMINAL PIPE SIZE		OUTER DIA O (mm)	OUTER DIA C (mm)	THICKNESS T (mm)	TOTAL THICKNESS 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	BUND
15	1/2	89	22.3	11.1	16	30.2	34.9	4	15.9	80.3	0.5	0.5
20	3/4	98	27.7	12.7	16	38.1	42.9	4	15.9	89.9	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	86.9	1.4	1.4
40	1 1/2	127	49.5	17.5	22	65.1	73.0	4	15.9	96.4	1.4	1.80
50	2	152	82.0	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	286.5	13.6	20.4
250	10	408	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	412.9	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	481.8	39.7	69	504.8	533.4	16	31.8	577.9	59.0	99.9
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)
8	15.0	17	15.0	8
9	18.5	25	18.5	11
10	21.3	26	21.3	12
15	26.6	34	26.6	16
20	31.8	39	31.8	17
25	39.5	43	39.5	20
32	48.3	48	48.3	22
40	54.5	48	54.5	22
50	66.2	55	66.0	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





Honor Witness History  
Strength Prospect Future

# HONOR

## QUALIFICATIONS

and honors 资质荣誉……

