WE MAKE QUALITY

BURHANI AQMS INDUSTRIES

PRIVATE LIMITED

Technical Datasheet

*Only for reference purposes only.

Material

Ferrous Material					
Material Classification				Comparison as nations	
Large	Middle	Small		ASTM (U.S.A)	
				Designation	Identification
Ferrous (Base Mat'l:Fe)	Carbon Steel	Ambient and Higher Temperature Service		A234	WPB
					WPC
		Low Temperature Service		A420	WPL3
					WPL6
					WPL9
	Alloy Steel (Cr ≥ 1%)	Low Alloy (1% ≤ Cr ≤ 9%)		A234	WP1
					WP12
					WP11
					WP22
					WP5
					WP23
					WP9
					WP91
					WP92
		High Alloy (Cr ≥ 12%) :Stainless Steel	Martensitic Stainless Steel	A815	WP410
			Ferritic Stainless Steel		WP430
			Austenitic Stainless Steel	A403	WP304/L
					WP316/L
					WP317/L
					WP321/H
					WP347/H
			Super Austenitic Stainless Steel	A403	S31254
					904L
			Ferritic / Austenitic (Duplex / Super Duplex)	A815	S31803
					S32750
					S32760

- Applicable Code/Standard : ASTM Part A, Latest Edition,
  Non Registered materials on ASTM Latest Edition.

Non-Ferrous Material Comparison		
Material Classification	Trade Mark	UNS NO.
Non-Ferrous (Base Mat'l : Ni)	Inconel 600	N06600
	Inconel 690	N06690
	Inconel 800H / 800HT	N08810 / N08811
	Inconel 625	N06625
	Incoloy 825	N08825
	Hastelloy B2	N10665
	Hastelloy C276	N10276
	Hastelloy C22	N06022
	Incoloy 020	N08020
	Monel 400	N04400
	Monel K500	N05500
Non-Ferrous (Base Mat'l : Cu)	Cu-Ni 70/30	C71500
	Cu-Ni 90/10	C70600

- Applicable Code/Standard : ASTM Part B, Latest Edition.

Specification

KS : KOREAN INDUSTRIAL STANDARDS

KS B 1522	Steel Butt Welding Pipe Fittings for Oidinary use and Fuel Gas.
KS B 1541	Steel Butt Welding Pipe Fittings.
KS B 1542	Steel Socket Welding Pipe Fittings.
KS B 1543	Steel Plate Butt Welding Pipe Fittings.

JIS : JAPANESE INDUSTRIAL STANDARDS

JIS B 2311	Steel Butt Welding Pipe Fittings for Ordinary use.
JIS B 2312	Steel Butt Welding Pipe Fittings.
JIS B 2313	Steel Plate Butt Welding Pipe Fittings.
JIS B 2316	Steel Socket Welding Pipe Fittings.

ASTM : AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM A 105	Carbon Steel Forgings for Piping Applications
ASTM A 182	Forged or Rolled Alloy Steel Pipe Flanges, Forged Fittings, and Valves and Parts for high Temperature Service
ASTM A 234	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service
ASTM A 350	Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components
ASTM A 403	Wrought Austenitic Stainless Steel Piping Fittings
ASTM A 420	Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service
ASTM A 694	Carbon and Alloy Steel Forgings for Pipe Flanges, Fittings, Valves, and Parts for High-Pressure Transmission Service
ASTM A 815	Wrought Ferritic, Ferritic/Austenitic, and Martensitic Stainless Steel Piping Fittings
ASTM A 860	Wrought High-Strength Low-Alloy Steel Butt-Welding Fittings
ASTM B 366	Factory-Made Wrought Nickel and Nickel Alloy Fittings

MSS : MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY

MSS SP-25	Standard Marketing System for Valves, Fittings, Flanges and Unions.
MSS SP-43	Wrought Stainless Steel Butt Welding Fittings.
MSS SP-44	Standard for Steel Pipe Line Flanges.
MSS SP-75	Specification for High Test Wrought Butt Welding Fittings.
MSS SP-79	Socket Welding Reducer Inserts.
MSS SP-83	Carbon Steel Pipe Union Socket welding and Threaded.
MSS SP-87	Factory-Made Butt Welding Fittings for Class 1 Nuclear Piping Applications.
MSS SP-95	Swage(d) Nipples and Bull Plugs.
MSS SP-97	Integrally Reinforced Forged Branch Outlet Fittings-socket Welding, Threaded and Butt Welding Ends.

ASME : AMERICAN SOCIETY OF MECHANICAL ENGINEERS

ASME : ASME BOILER AND PRESSURE VESSEL CODE AN INTERNATIONAL CODE

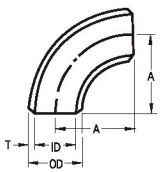
ASME B 16.5	Pipe Flanges and Flanged Fittings.
ASME B 16.9	Factory Made Wrought Steel Butt Welding Fittings.
ASME B 16.11	Forged Fittings, Socket welding and Threaded
ASME B 16.25	Butt Welding Ends.
ASME B 36.10	Welded and Seamless Wrought Steel Pipe.
ASME B 36.19	Stainless Steel Pipe.
ASME B31.1	Power piping.
ASME B31.3	Process piping.
ASME SECTION Ⅱ	Materials.
ASME SECTION Ⅲ	Rules for Construction of Nuclear Facirity Components.
ASME SECTION Ⅴ	Nondestructive Examination.
ASME SECTION Ⅷ	Rule for Construction of Pressure Vessels.
ASME SECTION Ⅸ	Welding and Brazing Qualifications.

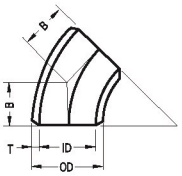
API : AMERICAN PETROLEUM INSTITUTE

API 5L	Line Pipe.

90° Elbow (Long, Short)
45° Elbow (Long)

Sch5s, Sch10s, Sch40s, Sch80s





ASME B16.9, MSS SP-43

(Unit : inch)

Nominal Pipe Size	Outside Diameter O.D	Center to End			5S	
		Long		Short	T	I.D
		A	B	A		
1/2	0.840	1.50	0.62		0.065	0.710
3/4	1.050	1.05	0.75		0.065	0.920
1	1.315	1.50	0.88	1.00	0.065	1.185
1-1/4	1.660	1.88	1.00	1.25	0.065	1.530
1-1/2	1.900	2.25	1.12	1.50	0.065	1.770
2	2.375	3.00	1.38	2.00	0.065	2.245
2-1/2	2.875	3.75	1.75	2.50	0.083	2.709
3	3.500	4.25	2.00	3.00	0.083	3.334
3-1/2	4.000	5.25	2.25	3.50	0.083	3.834
4	4.500	6.00	2.50	4.00	0.083	4.334
5	5.563	7.50	3.12	5.00	0.109	5.345
6	6.625	9.00	3.75	6.00	0.109	6.407
8	8.625	12.00	5.00	8.00	0.109	8.407
10	10.750	15.00	6.25	10.00	0.134	10.482
12	12.750	18.00	7.50	12.00	0.156	12.438
14	14.000	21.00	8.75	14.00	0.156	13.688
16	16.000	24.00	10.00	16.00	0.165	15.670
18	18.000	27.00	11.25	18.00	0.165	17.670
20	20.000	30.00	12.50	20.00	0.188	19.624
22	22.000	33.00	13.50	22.00	0.188	21.624
24	24.000	36.00	15.00	24.00	0.218	23.564
30	30.000	45.00	18.50		0.250	29.500

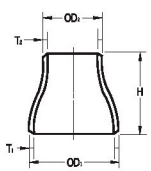
Nominal Pipe Size	10S		40S		80S	
	T	I.D	T	I.D	T	I.D
1/2	0.083	0.674	0.109	0.622	0.147	0.546
3/4	0.083	0.884	0.113	0.824	0.154	0.742
1	0.109	1.097	0.133	1.049	0.179	0.957
1-1/4	0.109	1.442	0.140	1.380	0.191	1.278
1-1/2	0.109	1.682	0.145	1.610	0.200	1.500
2	0.109	2.157	0.154	2.067	0.218	1.939
2-1/2	0.120	2.635	0.203	2.469	0.276	2.323
3	0.120	3.260	0.216	3.068	0.300	2.900
3-1/2	0.120	3.760	0.226	3.548	0.318	3.364
4	0.120	4.260	0.237	4.026	0.337	3.826
5	0.134	5.295	0.258	5.047	0.375	4.813
6	0.134	6.357	0.280	6.065	0.432	5.761
8	0.148	8.329	0.322	7.981	0.500	7.625
10	0.165	10.420	0.365	10.020	0.500	9.750
12	0.180	12.390	0.375	12.000	0.500	11.750
14	0.188	13.624	0.375	13.250	0.500	13.000
16	0.188	15.624	0.375	15.250	0.500	15.000
18	0.188	17.624	0.375	17.250	0.500	17.000
20	0.218	19.564	0.375	19.250	0.500	19.000
22	0.218	21.564				
24	0.250	23.500	0.375	23.250	0.500	23.000
30	0.312	29.376				

- For Bevel Details See Page 356
- For Dimensional Tolerances See Page 362

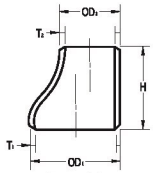
- Wall Thickness Conform to ASME B 36.19M Specifications

Reducer

Sch5s, Sch10s, Sch40s, Sch80s



Concentric



Eccentric

ASME B16.9, MSS SP-43

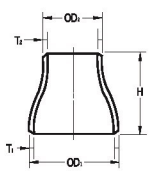
(Unit : inch)

Nominal Pipe Size	Outside Diameter		End to End	5S	
	OD1	OD2	H	T1	T2
3/4 X 1/2	1.050	0.840	1.50	0.065	0.065
1 X 3/4	1.315	1.050	2.00	0.065	0.065
1 X 1/2	1.315	0.840	2.00	0.065	0.065
1-1/4 X 1	1.660	1.315	2.00	0.065	0.065
1/4 X 3/4	1.660	1.050	2.00	0.065	0.065
1-1/4 X 1/2	1.660	0.840	2.00	0.065	0.065
1-1/2 X 1-1/4	1.900	1.660	2.50	0.065	0.065
1-1/2 X 1	1.900	1.315	2.50	0.065	0.065
1-1/2 X 3/4	1.900	1.050	2.50	0.065	0.065
1-1/2 X 1/2	1.900	0.840	2.50	0.065	0.065
2 X 1-1/2	2.375	1.900	3.00	0.065	0.065
2 X 1-1/4	2.375	1.660	3.00	0.065	0.065
2 X 1	2.375	1.315	3.00	0.065	0.065
2 X 3/4	2.375	1.050	3.00	0.065	0.065
2-1/2 X 2	2.875	2.375	3.50	0.083	0.065
2-1/2 X 1-1/2	2.875	1.900	3.50	0.083	0.065
2-1/2 X 1-1/4	2.875	1.660	3.50	0.083	0.065
3 X 2-1/2	3.500	2.875	3.50	0.083	0.083
3 X 2	3.500	2.375	3.50	0.083	0.065
3 X 1-1/2	3.500	1.900	3.50	0.083	0.065
3 X 1-1/4	3.500	1.660	3.50	0.083	0.065
3-1/2 X 3	4.000	3.500	4.00	0.083	0.083
3-1/2 X 2-1/2	4.000	2.875	4.00	0.083	0.083
3-1/2 X 2	4.000	2.375	4.00	0.083	0.065
4 X 3-1/2	4.500	4.000	4.00	0.083	0.083
4 X 3	4.500	3.500	4.00	0.083	0.083

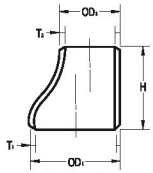
Nominal Pipe Size	10S		40S		80S	
	T1	T2	T1	T2	T1	T2
3/4 X 1/2	0.083	0.083	0.113	0.109	0.154	0.147
1 X 3/4	0.109	0.083	0.133	0.113	0.179	0.154
1 X 1/2	0.109	0.083	0.133	0.109	0.179	0.147
1-1/4 X 1	0.109	0.109	0.140	0.133	0.191	0.179
1/4 X 3/4	0.109	0.083	0.140	0.113	0.191	0.154
1-1/4 X 1/2	0.109	0.083	0.140	0.109	0.191	0.147
1-1/2 X 1-1/4	0.109	0.109	0.145	0.140	0.200	0.191
1-1/2 X 1	0.109	0.109	0.145	0.133	0.200	0.179
1-1/2 X 3/4	0.109	0.083	0.145	0.113	0.200	0.154
1-1/2 X 1/2	0.109	0.083	0.145	0.109	0.200	0.147
2 X 1-1/2	0.109	0.109	0.154	0.145	0.218	0.200
2 X 1-1/4	0.109	0.109	0.154	0.140	0.218	0.191
2 X 1	0.109	0.109	0.154	0.133	0.218	0.179
2 X 3/4	0.109	0.083	0.154	0.113	0.218	0.154
2-1/2 X 2	0.120	0.109	0.203	0.154	0.276	0.218
2-1/2 X 1-1/2	0.120	0.109	0.203	0.145	0.276	0.200
2-1/2 X 1-1/4	0.120	0.109	0.203	0.140	0.276	0.191
3 X 2-1/2	0.120	0.120	0.216	0.203	0.300	0.276
3 X 2	0.120	0.109	0.216	0.154	0.300	0.218
3 X 1-1/2	0.120	0.109	0.216	0.145	0.300	0.200
3 X 1-1/4	0.120	0.109	0.216	0.140	0.300	0.191
3-1/2 X 3	0.120	0.120	0.226	0.216	0.318	0.300
3-1/2 X 2-1/2	0.120	0.120	0.226	0.203	0.318	0.276
3-1/2 X 2	0.120	0.109	0.226	0.154	0.318	0.218
4 X 3-1/2	0.120	0.120	0.237	0.226	0.337	0.318
4 X 3	0.120	0.120	0.237	0.216	0.337	0.300

Reducer

Sch5s, Sch10s, Sch40s, Sch80s



Concentric



Eccentric

ASME B16.9, MSS SP-43

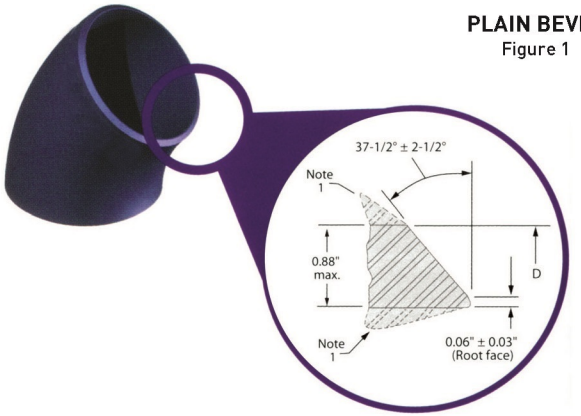
(Unit : inch)

Nominal Pipe Size	Outside Diameter		End to End	5S	
	OD1	OD2	H	T1	T2
4 X 2-1/2	4.500	2.875	4.00	0.083	0.083
4 X 2	4.500	2.375	4.00	0.083	0.065
5 X 4	5.563	4.500	5.00	0.109	0.083
5 X 3-1/2	5.563	4.000	5.00	0.109	0.083
5 X 3	5.563	3.500	5.00	0.109	0.083
5 X 2-1/2	5.563	2.875	5.00	0.109	0.083
6 X 5	6.625	5.563	5.50	0.109	0.109
6 X 4	6.625	4.500	5.50	0.109	0.083
6 X 3-1/2	6.625	4.000	5.50	0.109	0.083
6 X 3	6.625	3.500	5.50	0.109	0.083
8 X 6	8.625	6.625	6.00	0.109	0.109
8 X 5	8.625	5.563	6.00	0.109	0.109
8 X 4	8.625	4.500	6.00	0.109	0.083
10 X 8	10.750	8.625	7.00	0.134	0.109
10 X 6	10.750	6.625	7.00	0.134	0.109
10 X 5	10.750	5.563	7.00	0.134	0.109
12 X 10	12.750	10.750	8.00	0.156	0.134
12 X 8	12.750	8.625	8.00	0.156	0.109
12 X 6	12.750	6.625	8.00	0.156	0.109
14 X 12	14.000	12.750	13.00	0.156	0.156
14 X 10	14.000	10.750	13.00	0.156	0.134
14 X 8	14.000	8.625	13.00	0.156	0.109
16 X 14	16.000	14.000	14.00	0.165	0.156
16 X 12	16.000	12.750	14.00	0.165	0.156
16 X 10	16.000	10.750	14.00	0.165	0.134
18 X 16	18.000	16.000	15.00	0.165	0.165

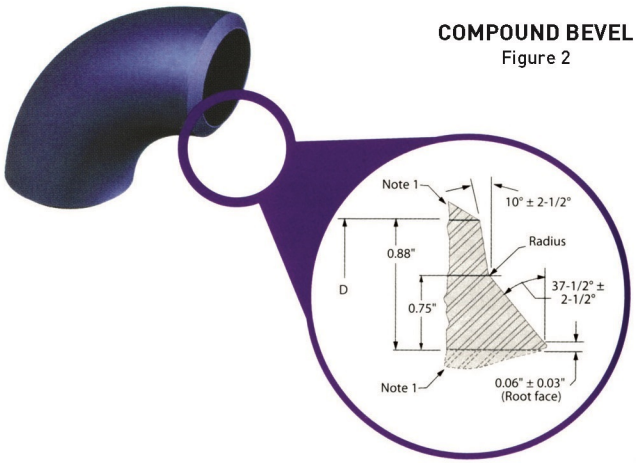
Nominal Pipe Size	10S		40S		80S	
	T1	T2	T1	T2	T1	T2
4 X 2-1/2	0.120	0.120	0.237	0.203	0.337	0.276
4 X 2	0.120	0.109	0.237	0.154	0.337	0.218
5 X 4	0.134	0.120	0.258	0.237	0.375	0.337
5 X 3-1/2	0.134	0.120	0.258	0.226	0.375	0.318
5 X 3	0.134	0.120	0.258	0.216	0.375	0.300
5 X 2-1/2	0.134	0.120	0.258	0.203	0.375	0.276
6 X 5	0.134	0.134	0.280	0.258	0.432	0.375
6 X 4	0.134	1.120	0.280	0.237	0.432	0.337
6 X 3-1/2	0.134	1.120	0.280	0.226	0.432	0.318
6 X 3	0.134	1.120	0.280	0.216	0.432	0.300
8 X 6	0.148	0.134	0.322	0.280	0.500	0.432
8 X 5	0.148	0.134	0.322	0.258	0.500	0.375
8 X 4	0.148	0.120	0.322	0.237	0.500	0.337
10 X 8	0.165	0.148	0.365	0.322	0.500	0.500
10 X 6	0.165	0.134	0.365	0.280	0.500	0.432
10 X 5	0.165	0.134	0.365	0.258	0.500	0.375
12 X 10	0.180	0.165	0.375	0.365	0.500	0.500
12 X 8	0.180	0.148	0.375	0.322	0.500	0.500
12 X 6	0.180	0.134	0.375	0.280	0.500	0.432
14 X 12	0.188	0.180	0.375	0.375	0.500	0.500
14 X 10	0.188	0.165	0.375	0.365	0.500	0.500
14 X 8	0.188	0.148	0.375	0.322	0.500	0.500
16 X 14	0.188	0.188	0.375	0.375	0.500	0.500
16 X 12	0.188	0.180	0.375	0.375	0.500	0.500
16 X 10	0.188	0.165	0.375	0.365	0.500	0.500
18 X 16	0.188	0.188	0.375	0.375	0.500	0.500

BEVEL DETAIL - WELDING FITTINGS

PLAIN BEVEL
Figure 1



COMPOUND BEVEL
Figure 2

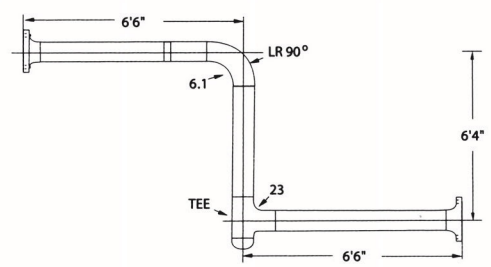


Wall Thickness(T)	End Preparation
Less than x [2]	Cut square or slightly chamfer, at manufacturer's option (not illustrated).
x to 0.88, inclusive	Plain bevel as in Figure 1 above.
More than 0.88	Compound bevel as in Figure 2 above.

Note:
1. See ASME B16.9 for transition contours.
2. x = 0.19″ for carbon steel or ferritic alloy steel and 0.12″ for austenitic alloy steel.

FLOW RESISTANCE EQUIVALENT LENGTH OF WELDBEND ELBOWS AND TEES

Nominal Pipe Size	Long Radius	Short Radius	Welding Tee
1	1.1	1.4	3.9
1-1/4	1.4	1.8	5.2
1-1/2	1.6	2.1	6.0
2	2.1	2.8	7.8
2-1/2	2.6	3.3	9.3
3	3.1	4.1	11.0
4	4.0	5.4	15.0
5	5.1	6.7	19.0
6	6.1	8.1	23.0
8	8.0	11.0	30.0
10	10.0	12.0	38.0
12	12.0	16.0	45.0
14	13.0	18.0	49.0
16	15.0	20.0	56.0
18	17.0	23.0	63.0
20	19.0	25.0	71.0
24	23.0	30.0	85.0
30	30.0	36.0	140.0
36	38.0	42.0	170.0
42	45.0	50.0	200.0
48	52.0	58.0	240.0



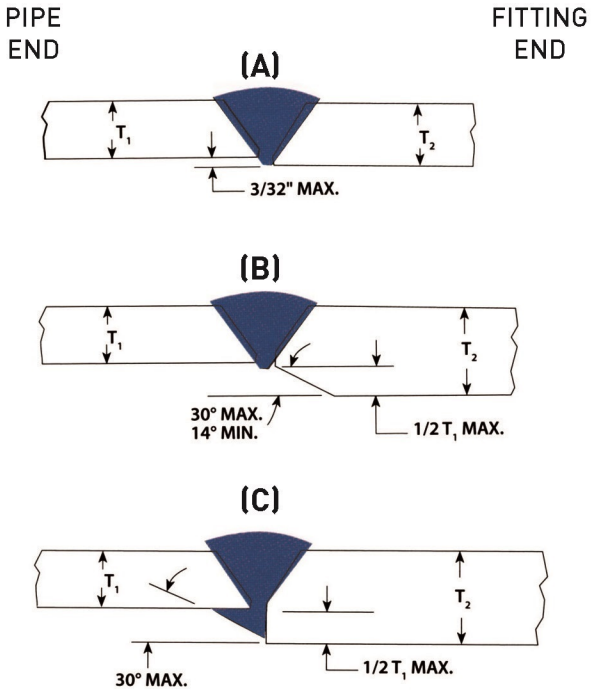
The infrmation given in the chart above illustrates the resestance of fittings ti the flow of liquids. This resistance is given in the equivalent of the straight pipe, and should be assumed as approximate information. Allowances have been made p for the curvature of elbows, so that the resistance values should be added to the total center-to end dimensions of the piping configuration.

Example using 6″ pipe:

Resistance of Pipe:	(6.6+6.4+6.6)	= 19.6
+ Resistance of Elbow:		= 6.1
Resistance of Tee:		= 23.0
		= 48.7

Therefore, the total resistance of the entire assembly to the flow of liquid would be equal to the resistance of 48.7 Linear feet of 6″ straight pipe.

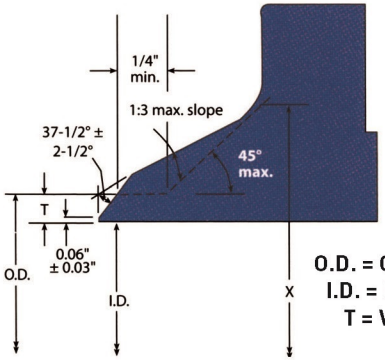
JOINING BUTTWELDING FITTINGS TO PIPE
of equal or less wall thickness



NOTES

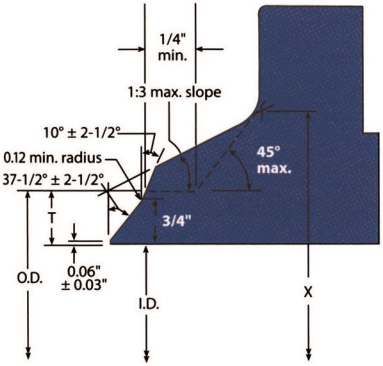
1. Buttwelding fittings can be joined to pipe of lesser wall thickness with proper end preparation and joint design.
2. Above diagrams and recommendations that follow apply to components with ends originally prepared as standard 37-1/2° or 30°degree bevels and where the wall thickness of the thicker end to be jined does not exceed 1-1/2times the thinner (pipe) end.
3. The nominal thickness T (pipe) end T (fitting) shall comply with the design requirements of the applicable section of the ASME B3?1 Code For Pressure Piping.
4. Where the total nominal offser(T_2-T_1) dose not exceed 3/32" and full penetration and bonding is obtained during welding, no special treatment is required [see (A)].
5. When the internal offset exceeds 3/32", taper cut in accordance with (B) ... or tape weld in accordance with (C)
6. When joining ends with materials of unequal minimum specified yield strenghs (or unequal allowable stress), the deposited weld metal shall have mechanical properties at least equal to thoes of the higher strengh (pipe) end.
7. For treatments of ends with inequal external diameters and/or where T_2 is thicker than 1-1/2 times T_1, refer to the applicable section of the ASME Code, e., B31.4 or B31.8 or B16.9.

BEVEL FOR WELDNECK FLANGES



Bevel for Wall Thickness (T) from 0.19 in. to 0.88 in. Inclusive

O.D. = Outside Diameter of pipe
I.D. = Inside Diameter of pipe
T = Wall thickness of pipe



Bevel for Wall Thickness (T) Greater Than 0.88 in.

NOTES

1. All dimensions are in inches/
2. When the thickness of the hub at the bevel is greater than that of the pipe to which the flange is joined and the additional thickness is provided on the outside diameter, a taper weld having a slope not exceeding 1 to 3 may be employed ot, alternatively, the greater outside diameter may be tapered at the same maximum slope or less, from a point on the welding bevel equal to the outside diameter of the mating pipe. Similarly, when the greater thickness is provided on the inside of the flange, it shall be taper-bored from the welding end at the slope not exceeding 1 to 3. When flanges covered by this Standard are intended for services with light wall, hugher stengh pipe, the thickness of the hub at the bevel may be greater than that of the pipe to shich the flange is joined. Under there conditions, a single taper hub may be provided, and the outside diameter of the hub at the base (dimension X) may also be modified. The additional thickness may be provided on either inside or outside or partially on each side, but the total additional thickness shall not exceed one-half times the nominal wall thickness of intended mating pipe. See page 58.
3. The hub transition from the outside diameter to the X diameter shall fall within the maximum and minimum envelope outlined by the 1:3 max. slope and dashed line.
4. For welding end dimensions, refer to ASME B16.25.

PIPE ALIGNMENT

Proper alignment is one of the most important tasks performed by the pipe filter.If done correctly, welding will be much easier and the piping system will be properly fabricated. if alignment is poor, however, welding will be difficult and the piping system may not function property.

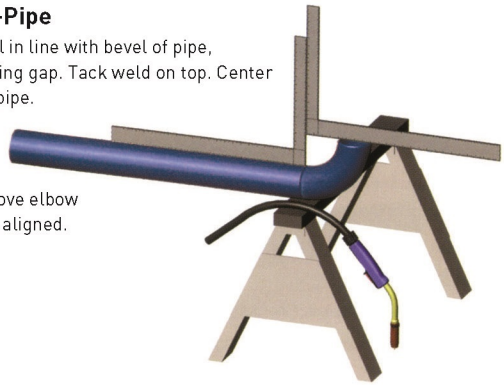
Many device are available to aid alignment and methods of alignment vary widely throughout the trade. There is no best system ... any number of methods have proven successful. The procedures suggested by this manual are popular with many craftsmen and will enable you to quickly obtain good alignment.

Pipe-to-Pipe

Move pipe lengths together until bevels are nearby abutted, allowing apace for welding gap. Center squares on top of both pipes and move pipe up and dawn until squares are aligned. Tack weld top and bottom. Repear procedure by placing squares on side of pipe. Correct allignment by moving pipe left of right. Tack weld each side.

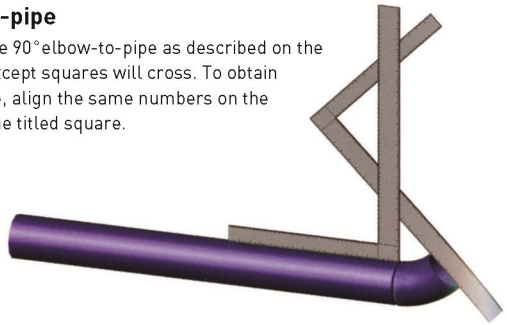
90° Elbow-to-Pipe

Place fitting bevel in line with bevel of pipe, allowing for welding gap. Tack weld on top. Center square on top of pipe. Center second square on elbow's alternate face. Move elbow until squares are aligned.



45° Elbow-to-pipe

Follow procedure 90° elbow-to-pipe as described on the previous page except squares will cross. To obtain correct 45° angle, align the same numbers on the inside scale of the titled square.

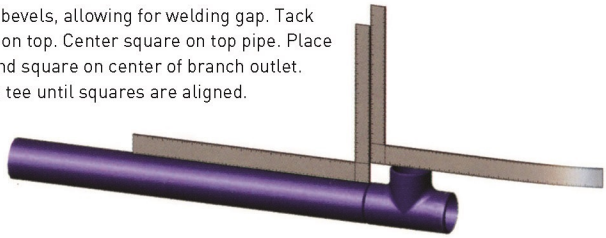


Alternate Method for 45° Elbow-to-pipe

Use same procedure to abut pipe and fitting. Center spirit level pipe. Next, center 45° spirit level on face of elbow and move elbow until 45° bubble is centered.

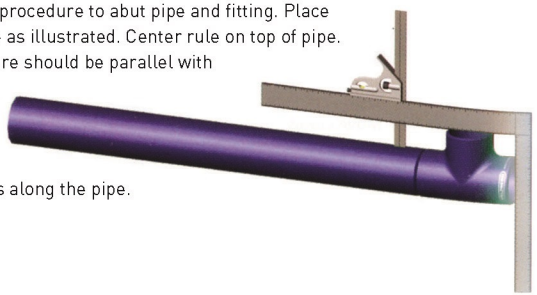
Tee-to-Pipe

Abut bevels, allowing for welding gap. Tack weld on top. Center square on top pipe. Place second square on center of branch outlet. Move tee until squares are aligned.



Alternate Method for Tee-to-Pipe

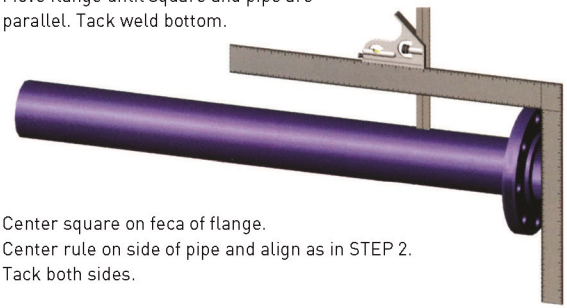
Follow same procedure to abut pipe and fitting. Place square on tee as illustrated. Center rule on top of pipe. Blade of square should be parallel with pipe. Check by measuring with rule at several points along the pipe.



Flange-to-Pipe

STEP 1. Abut flange to pipe. Align top two holes of flange with spirit level. Move flange until bubble centerd. Make one tack weld on top.

STEP 2. Center square on feca of flange. Center rule on top of pipe. Move flange until square and pipe are parallel. Tack weld bottom.

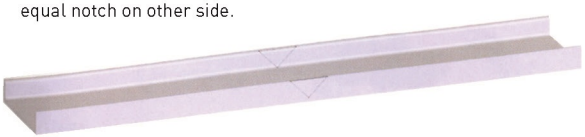


STEP 3. Center square on feca of flange. Center rule on side of pipe and align as in STEP 2. Tack both sides.

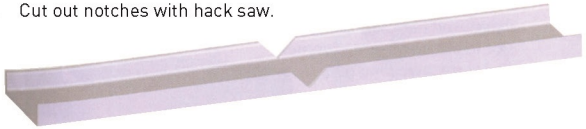
JIG FOR SMALL DIAMETER PIPING

Many pipe fitters have found this simple jig to be helpful in aligning small diameter pipe and elbows. It is made from channel iron approximately 3'9"long. Use 1/8" × 1-1/2" for pipe sizes 1-1/4" thru 3";, 1/8" ×3/4" for sizes 1" or smaller.

STEP 1. Mark 90° notch on side of channel iron about 9" from end. Make equal notch on other side.

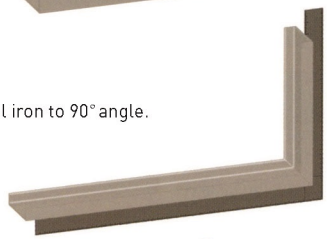


STEP 2. Cut out notches with hack saw.

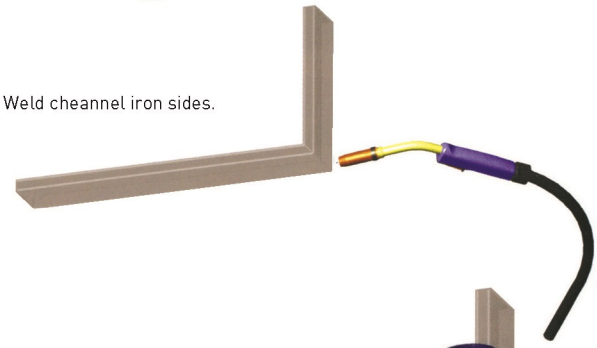


STEP 3. Heat Bottome of channel iron between the notches.

STEP 4. Bend channel iron to 90° angle.



STEP 5. Weld cheannel iron sides.



STEP 6. Place 90° Long Radius Elbow in jig. Saw half thru both sides of channel iron as shown in illustration. Repeat with other size elbows so jig may be used for several sizes.

STEP 7. Place used hack saw blade in slot to obtain proper alignment and correct welding gap.