

BUTT WELD FITTINGS



Specification:

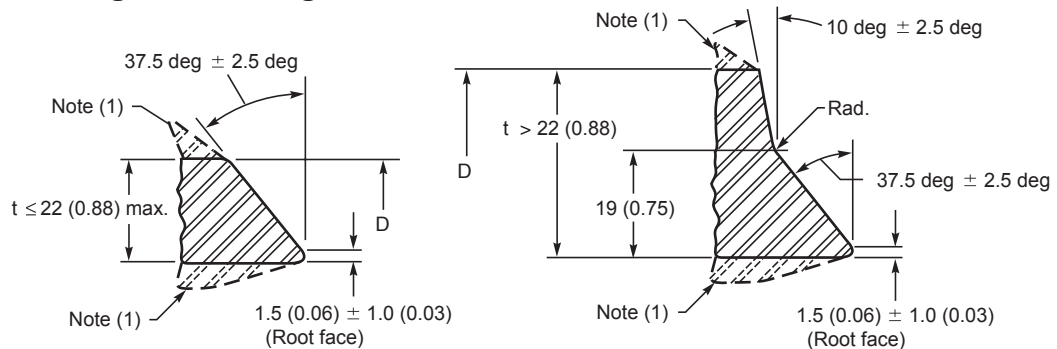
BUTT WELD FITTINGS

The simplest way to alter the direction or function in any piping system is by using a pipe fitting/swept fitting. Pipe fittings/Swept fittings can easily change the direction of flow by maintaining the consistent wall thickness and swept radius resulting in efficient Laminar flow.

Classification and Application:

- Welding a fitting to the pipe ensures it to be leak-proof.
- The weld component between the pipe and fitting adds strength to the system.
- Smooth inner surface and gradual directional changes reduce pressure losses and turbulence and minimize the action of corrosion and erosion.
- A welded system utilizes a minimum of space.
- Conforms to ASME B16.9 & ASTM A234 WPB

Welding Bevel Design



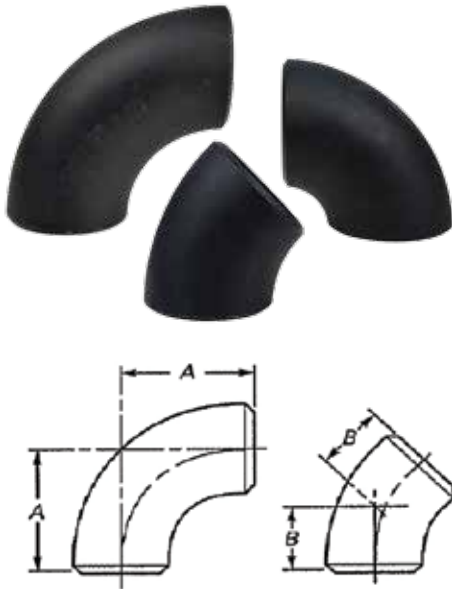
Wall Thickness(t)	End Preparation
Less than x (2)	Cut square or slightly chamfer, at manufacturer's option(not illustrated)
x to 0.88, inclusive	Plain bevel as shown
More than 0.88	Compound bevel as shown

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

* Due to the continuous development of our products, design or construction may change without prior notice.

BUTT WELD FITTINGS

Elbow



Standard, XH, SCH. 160 & XXH Dimensions (IN)

NPS	O.D.	SCH.	Wall Thickness	90° Elbow Long Radius	90° Elbow Short Radius	45° Elbow
			t	Center to End 'A'	Center To End 'A'	Center to End 'B'
1/2"	0.84	Std.	0.109	1.50	—	0.62
		XH	0.147			
		Sch. 160	0.188			
		XXH	0.294			
3/4"	1.05	Std.	0.113	1.50	—	0.75
		XH	0.154			
		Sch. 160	0.219			
		XXH	0.308			
1	1.32	Std.	0.133	1.50	1.00	0.88
		XH	0.179			
		Sch. 160	0.250			
		XXH	0.358			
1-1/4"	1.66	Std.	0.140	1.88	1.25	1.00
		XH	0.191			
		Sch. 160	0.250			
		XXH	0.382			
1-1/2"	1.90	Std.	0.145	2.25	1.50	1.12
		XH	0.200			
		Sch. 160	0.281			
		XXH	0.400			
2"	2.38	Std.	0.154	3.00	2.00	1.38
		XH	0.218			
		Sch. 160	0.344			
		XXH	0.436			
2-1/2"	2.88	Std.	0.203	3.75	2.50	1.75
		XH	0.276			
		Sch. 160	0.375			
		XXH	0.552			
3"	3.50	Std.	0.216	4.50	3.00	2.00
		XH	0.300			
		Sch. 160	0.438			
		XXH	0.600			
4"	4.50	Std.	0.237	6.00	4.00	2.50
		XH	0.337			
		Sch. 160	0.531			
		XXH	0.674			
5"	5.56	Std.	0.258	7.50	5.00	3.12
		XH	0.375			
		Sch. 160	0.625			
		XXH	0.750			
6"	6.62	Std.	0.280	9.00	6.00	3.75
		XH	0.432			
		Sch. 160	0.719			
		XXH	0.864			
8"	8.62	Std.	0.322	12.00	8.00	5.00
		XH	0.500			
		Sch. 160	0.906			
		XXH	0.875			
10"	10.75	Std.	0.365	15.00	10.00	6.25
		XH	0.500			
		Sch. 160	1.125			
		XXH	1.000			
12"	12.75	Std.	0.375	18.00	12.00	7.50
		XH	0.500			
		Sch. 160	1.312			
		XXH	1.000			
14"	14.00	Std.	0.375	21.00	14.00	8.75
		XH	0.500			
		Sch. 160	1.406			
		XXH	—			

BUTT WELD FITTINGS

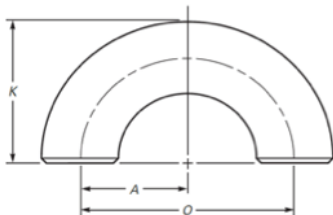
Elbow (Cont'd)



Standard, XH, SCH. 160 & XXH Dimensions (IN)

NPS	O.D.	SCH.	Wall Thickness	90° Elbow Long Radius		90° Elbow Short Radius	45° Elbow
			t	Center to End 'A'	Center To End 'A'	Center to End 'B'	
16"	16.00	Std.	0.375	24.00	16.00	10.00	
		XH	0.500				
		Sch. 160	1.594				
		XXH	—				
18"	18.00	Std.	0.375	27.00	18.00	11.25	
		XH	0.500				
		Sch. 160	1.781				
		XXH	—				
20"	20.00	Std.	0.375	30.00	20.00	12.50	
		XH	0.500				
		Sch. 160	1.969				
		XXH	—				
24"	24.00	Std.	0.375	36.00	24.00	15.00	
		XH	0.500				
		Sch. 160	2.344				
		XXH	—				

180° Bends



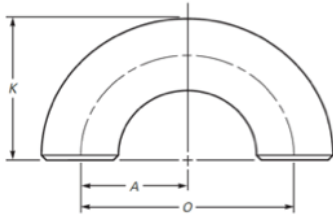
Standard, XH, SCH. 160 & XXH Dimensions (IN)

NPS	O.D.	SCH.	Wall Thickness	180° Bends Long Radius		180° Bends Short Radius	
			t	Center to Center 'O'	Back to Face 'K'	Center To Center 'O'	Back to Face 'K'
1/2"	0.84	Std.	0.109	3.00	1.88	—	—
		XH	0.147				
		Sch. 160	0.188				
		XXH	0.294				
3/4"	1.05	Std.	0.113	3.00	2.00	—	—
		XH	0.154				
		Sch. 160	0.219				
		XXH	0.308				
1"	1.32	Std.	0.133	3.00	2.19	2.00	1.62
		XH	0.179				
		Sch. 160	0.250				
		XXH	0.358				
1-1/4"	1.66	Std.	0.140	3.75	2.75	2.50	2.06
		XH	0.191				
		Sch. 160	0.250				
		XXH	0.382				
1-1/2"	1.90	Std.	0.145	4.50	3.25	3.00	2.44
		XH	0.200				
		Sch. 160	0.281				
		XXH	0.400				
2"	2.38	Std.	0.154	6.00	4.19	4.00	3.19
		XH	0.218				
		Sch. 160	0.344				
		XXH	0.436				
2-1/2"	2.88	Std.	0.203	7.50	5.19	5.00	3.94
		XH	0.276				
		Sch. 160	0.375				
		XXH	0.552				
3"	3.50	Std.	0.216	9.00	6.25	6.00	4.75
		XH	0.300				
		Sch. 160	0.438				
		XXH	0.600				
4"	4.50	Std.	0.237	12.00	8.25	8.00	6.25
		XH	0.337				
		Sch. 160	0.531				
		XXH	0.674				

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

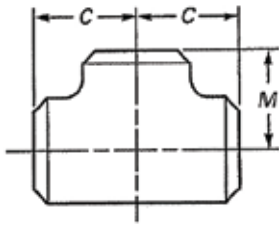
180° Bends (Cont'd)



NPS	O.D	SCH.	Wall Thickness t	180° Bends Long Radius		180° Bends Short Radius	
				Center to Center 'O'	Back to Face 'K'	Center To Center 'O'	Back to Face 'K'
5"	5.56	Std.	0.258	15.00	10.31	10.00	7.75
		XH	0.375				
		Sch. 160	0.625				
		XXH	0.750				
6"	6.62	Std.	0.280	18.00	12.31	12.00	9.31
		XH	0.432				
		Sch. 160	0.719				
		XXH	0.864				
8"	8.62	Std.	0.322	24.00	16.31	16.00	12.31
		XH	0.500				
		Sch. 160	0.906				
		XXH	0.875				
10"	10.75	Std.	0.365	30.00	20.38	20.00	15.38
		XH	0.500				
		Sch. 160	1.125				
		XXH	1.000				
12"	12.75	Std.	0.375	36.00	24.38	24.00	18.38
		XH	0.500				
		Sch. 160	1.312				
		XXH	1.000				
14"	14.00	Std.	0.375	42.00	28.00	28.00	21.00
		XH	0.500				
		Sch. 160	1.406				
		XXH	—				
16"	16.00	Std.	0.375	48.00	32.00	32.00	24.00
		XH	0.500				
		Sch. 160	1.594				
		XXH	—				
18"	18.00	Std.	0.375	54.00	36.00	36.00	27.00
		XH	0.500				
		Sch. 160	1.781				
		XXH	—				
20"	20.00	Std.	0.375	60.00	40.00	40.00	30.00
		XH	0.500				
		Sch. 160	1.969				
		XXH	—				
24"	24.00	Std.	0.375	72.00	48.00	48.00	36.00
		XH	0.500				
		Sch. 160	2.344				
		XXH	—				

BUTT WELD FITTINGS

Tee

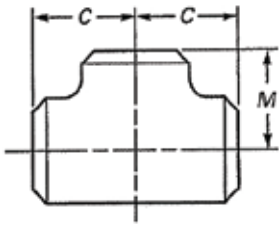


Standard, XH, SCH. 160 & XXH Dimensions (IN)

NPS	O.D.	SCH.	Wall Thickness	Straight TEES	
			t	Center to Center 'C'	Center to End 'M'
1/2"	0.84	Std.	0.109	1.00	1.00
		XH	0.147		
		Sch. 160	0.188		
		XXH	0.294		
3/4"	1.05	Std.	0.113	1.12	1.12
		XH	0.154		
		Sch. 160	0.219		
		XXH	0.308		
1	1.32	Std.	0.133	1.50	1.50
		XH	0.179		
		Sch. 160	0.250		
		XXH	0.358		
1-1/4"	1.66	Std.	0.140	1.88	1.88
		XH	0.191		
		Sch. 160	0.250		
		XXH	0.382		
1-1/2"	1.90	Std.	0.145	2.25	2.25
		XH	0.200		
		Sch. 160	0.281		
		XXH	0.400		
2"	2.38	Std.	0.154	2.50	2.50
		XH	0.218		
		Sch. 160	0.344		
		XXH	0.436		
2-1/2"	2.88	Std.	0.203	3.00	3.00
		XH	0.276		
		Sch. 160	0.375		
		XXH	0.552		
3"	3.50	Std.	0.216	3.38	3.38
		XH	0.300		
		Sch. 160	0.438		
		XXH	0.600		
4"	4.50	Std.	0.237	4.12	4.12
		XH	0.337		
		Sch. 160	0.531		
		XXH	0.674		
5"	5.56	Std.	0.258	4.88	4.88
		XH	0.375		
		Sch. 160	0.625		
		XXH	0.750		
6"	6.62	Std.	0.280	5.62	5.62
		XH	0.432		
		Sch. 160	0.719		
		XXH	0.864		
8"	8.62	Std.	0.322	7.00	7.00
		XH	0.500		
		Sch. 160	0.906		
		XXH	0.875		

BUTT WELD FITTINGS

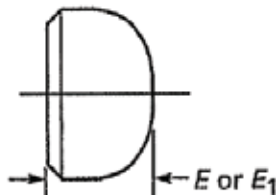
Tee (Cont'd)



Standard, XH, SCH. 160 & XXH Dimensions (IN)

NPS	O.D	SCH.	Wall Thickness	Straight TEES	
			t	Center to Center 'C'	Center to End 'M'
10"	10.75	Std.	0.365	8.50	8.50
		XH	0.500		
		Sch. 160	1.125		
		XXH	1.000		
12"	12.75	Std.	0.375	10.00	10.00
		XH	0.500		
		Sch. 160	1.312		
		XXH	1.000		
14"	14.00	Std.	0.375	11.00	11.00
		XH	0.500		
		Sch. 160	1.406		
		XXH	—		
16"	16.00	Std.	0.375	12.00	12.00
		XH	0.500		
		Sch. 160	1.594		
		XXH	—		
18"	18.00	Std.	0.375	13.50	13.50
		XH	0.500		
		Sch. 160	1.781		
		XXH	—		
20"	20.00	Std.	0.375	15.00	15.00
		XH	0.500		
		Sch. 160	1.969		
		XXH	—		
24"	24.00	Std.	0.375	17.00	17.00
		XH	0.500		
		Sch. 160	2.344		
		XXH	—		

Cap

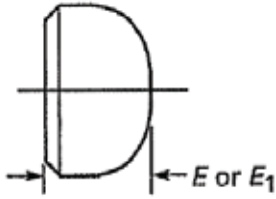


Standard, XH, SCH. 160 & XXH Dimensions (IN)

NPS	O.D	SCH.	Wall Thickness	Caps
			t	Length 'E'
1/2"	0.84	Std.	0.109	1.00
		XH	0.147	
		Sch. 160	0.188	
		XXH	0.294	
3/4"	1.05	Std.	0.113	1.00
		XH	0.154	
		Sch. 160	0.219	
		XXH	0.308	
1	1.32	Std.	0.133	1.50
		XH	0.179	
		Sch. 160	0.250	
		XXH	0.358	
1-1/4"	1.66	Std.	0.140	1.50
		XH	0.191	
		Sch. 160	0.250	
		XXH	0.382	

BUTT WELD FITTINGS

Cap (Cont'd)



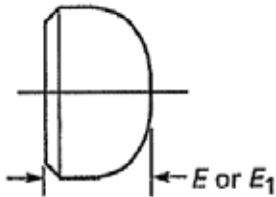
Standard, XH, SCH. 160 & XXH Dimensions (IN)

NPS	O.D.	SCH.	Wall Thickness	Caps
			t	Length 'E'
1-1/2"	1.90	Std.	0.145	1.50
		XH	0.200	
		Sch. 160	0.281	
		XXH	0.400	
2"	2.38	Std.	0.154	1.50
		XH	0.218	
		Sch. 160	0.344	
		XXH	0.436	
2-1/2"	2.88	Std.	0.203	1.50
		XH	0.276	
		Sch. 160	0.375	
		XXH	0.552	
3"	3.50	Std.	0.216	2.00
		XH	0.300	
		Sch. 160	0.438	
		XXH	0.600	
4"	4.50	Std.	0.237	2.50
		XH	0.337	
		Sch. 160	0.531	
		XXH	0.674	
5"	5.56	Std.	0.258	3.00
		XH	0.375	
		Sch. 160	0.625	
		XXH	0.750	
6"	6.62	Std.	0.280	3.50
		XH	0.432	
		Sch. 160	0.719	
		XXH	0.864	
8"	8.62	Std.	0.322	4.00
		XH	0.500	
		Sch. 160	0.906	
		XXH	0.875	
10"	10.75	Std.	0.365	5.00
		XH	0.500	
		Sch. 160	1.125	
		XXH	1.000	
12"	12.75	Std.	0.375	6.00
		XH	0.500	
		Sch. 160	1.312	
		XXH	1.000	
14"	14.00	Std.	0.375	6.50
		XH	0.500	
		Sch. 160	1.406	
		XXH	—	
16"	16.00	Std.	0.375	7.00
		XH	0.500	
		Sch. 160	1.594	
		XXH	—	

BUTT WELD FITTINGS

Cap (Cont'd)

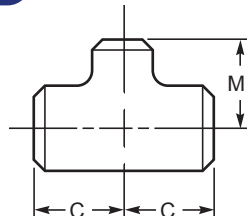
Standard, XH, SCH. 160 & XXH Dimensions (IN)



NPS	O.D	SCH.	Wall Thickness	Caps
			t	Length 'E'
18"	18.00	Std.	0.375	8.00
		XH	0.500	
		Sch. 160	1.781	
		XXH	—	
20"	20.00	Std.	0.375	9.00
		XH	0.500	
		Sch. 160	1.969	
		XXH	—	
24"	24.00	Std.	0.375	10.50
		XH	0.500	
		Sch. 160	2.344	
		XXH	—	

Reducing Tees

Standard, XH, SCH. 160 & XXH Dimensions (IN)



NPS	Run	Branch	SCH.	Wall Thickness		Reducing TEES	
	O.D	O.D		Run 't'	Branch 't'	Center to Center 'C'	Center to End 'M'
3/4" x 1/2"	1.05	0.84	Std.	0.113	0.109	1.12	1.12
			XH	0.154	0.147		
			Sch. 160	0.219	0.188		
			XXH	0.308	0.294		
1" x 3/4"	1.32	1.05	Std.	0.133	0.113	1.50	1.50
			XH	0.179	0.154		
			Sch. 160	0.250	0.219		
			XXH	0.358	0.308		
1" x 1/2"	1.32	0.84	Std.	0.133	0.109	1.50	1.50
			XH	0.179	0.147		
			Sch. 160	0.250	0.188		
			XXH	0.358	0.294		
1-1/4" x 1"	1.66	1.32	Std.	0.140	0.133	1.88	1.88
			XH	0.191	0.179		
			Sch. 160	0.250	0.250		
			XXH	0.382	0.358		
1-1/4" x 3/4"	2.66	2.32	Std.	0.140	0.113	1.88	1.88
			XH	0.191	0.154		
			Sch. 160	0.250	0.219		
			XXH	0.382	0.308		

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducing Tees (Cont'd)

NPS	Run	Branch	SCH.	Wall Thickness		Reducing TEES	
	O.D	O.D		Run 't'	Branch 't'	Center to Center 'C'	Center to End 'M'
1-1/4" x 1/2"	1.66	1.05	Std.	0.140	0.109	1.88	1.88
			XH	0.191	0.147		
			Sch. 160	0.250	0.188		
			XXH	0.382	0.294		
1-1/2" x 1-1/4"	1.90	1.66	Std.	0.145	0.140	2.25	2.25
			XH	0.200	0.191		
			Sch. 160	0.281	0.250		
			XXH	0.400	0.382		
1-1/2" x 1"	1.90	1.32	Std.	0.145	0.133	2.25	2.25
			XH	0.200	0.179		
			Sch. 160	0.281	0.250		
			XXH	0.400	0.358		
1-1/2" x 3/4"	1.90	1.05	Std.	0.145	0.113	2.25	2.25
			XH	0.200	0.154		
			Sch. 160	0.281	0.219		
			XXH	0.400	0.308		
1-1/2" x 1/2"	1.90	0.84	Std.	0.145	0.109	2.25	2.25
			XH	0.200	0.147		
			Sch. 160	0.281	0.188		
			XXH	0.400	0.294		
2" x 1-1/2"	2.38	1.90	Std.	0.154	0.145	2.50	2.38
			XH	0.218	0.200		
			Sch. 160	0.344	0.281		
			XXH	0.436	0.400		
2" x 1-1/4"	2.38	1.66	Std.	0.154	0.140	2.50	2.25
			XH	0.218	0.191		
			Sch. 160	0.344	0.250		
			XXH	0.436	0.382		
2" x 1"	2.38	1.32	Std.	0.154	0.133	2.50	2.00
			XH	0.218	0.179		
			Sch. 160	0.344	0.250		
			XXH	0.436	0.358		
2" x 3/4"	2.38	1.05	Std.	0.154	0.113	2.50	1.75
			XH	0.218	0.154		
			Sch. 160	0.344	0.219		
			XXH	0.436	0.308		
2-1/2" x 2"	2.88	2.38	Std.	0.203	0.154	3.00	2.75
			XH	0.276	0.218		
			Sch. 160	0.375	0.344		
			XXH	0.552	0.436		
2-1/2" x 1-1/2"	2.88	1.9	Std.	0.203	0.145	3.00	2.62
			XH	0.276	0.200		
			Sch. 160	0.375	0.281		
			XXH	0.552	0.400		

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducing Tees (Cont'd)

NPS	Run	Branch	SCH.	Wall Thickness		Reducing TEES	
	O.D	O.D		Run 't'	Branch 't'	Center to Center 'C'	Center to End 'M'
2-1/2" x 1-1/4"	2.88	1.66	Std.	0.203	0.140	3.00	2.50
			XH	0.276	0.191		
			Sch. 160	0.375	0.250		
			XXH	0.552	0.382		
2-1/2" x 1"	2.88	1.32	Std.	0.203	0.133	3.00	2.25
			XH	0.276	0.179		
			Sch. 160	0.375	0.250		
			XXH	0.552	0.358		
3" x 2-1/2"	3.50	2.88	Std.	0.216	0.203	3.38	3.25
			XH	0.300	0.276		
			Sch. 160	0.438	0.375		
			XXH	0.600	0.552		
3" x 2"	3.50	2.38	Std.	0.216	0.154	3.38	3.00
			XH	0.3	0.218		
			Sch. 160	0.438	0.344		
			XXH	0.6	0.436		
3" x 1-1/2"	3.50	1.90	Std.	0.216	0.145	3.38	2.88
			XH	0.3	0.2		
			Sch. 160	0.438	0.281		
			XXH	0.6	0.4		
3" x 1-1/4"	3.50	1.66	Std.	0.216	0.14	3.38	2.75
			XH	0.3	0.191		
			Sch. 160	0.438	0.25		
			XXH	0.6	0.382		
3" x 1"	3.50	1.32	Std.	0.216	0.133	3.38	2.62
			XH	0.3	0.179		
			Sch. 160	0.438	0.25		
			XXH	0.6	0.358		
4" x 3"	4.50	3.50	Std.	0.237	0.216	4.12	3.88
			XH	0.337	0.3		
			Sch. 160	0.531	0.438		
			XXH	0.674	0.6		
4" x 2-1/2"	4.50	2.88	Std.	0.237	0.203	4.12	3.75
			XH	0.337	0.276		
			Sch. 160	0.531	0.375		
			XXH	0.674	0.552		
4" x 2"	4.50	2.38	Std.	0.237	0.154	4.12	3.50
			XH	0.337	0.218		
			Sch. 160	0.531	0.344		
			XXH	0.674	0.436		
4" x 1-1/2"	4.50	1.9	Std.	0.237	0.145	4.12	3.38
			XH	0.337	0.2		
			Sch. 160	0.531	0.281		
			XXH	0.674	0.4		

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducing Tees (Cont'd)

NPS	Run	Branch	SCH.	Wall Thickness		Reducing TEES	
	O.D	O.D		Run 't'	Branch 't'	Center to Center 'C'	Center to End 'M'
5" x 4"	5.56	4.5	Std.	0.258	0.237	4.88	4.62
			XH	0.375	0.337		
			Sch. 160	0.625	0.531		
			XXH	0.75	0.674		
5" x 3"	5.56	3.5	Std.	0.258	0.216	4.88	4.38
			XH	0.375	0.3		
			Sch. 160	0.625	0.438		
			XXH	0.75	0.6		
5" x 2-1/2"	5.56	2.88	Std.	0.258	0.203	4.88	4.25
			XH	0.375	0.276		
			Sch. 160	0.625	0.375		
			XXH	0.75	0.552		
5" x 2"	5.56	2.38	Std.	0.258	0.154	4.88	4.12
			XH	0.375	0.218		
			Sch. 160	0.625	0.344		
			XXH	0.75	0.436		
6" x 5"	6.62	5.56	Std.	0.28	0.258	5.62	5.38
			XH	0.432	0.375		
			Sch. 160	0.719	0.625		
			XXH	0.864	0.75		
6" x 4"	6.62	4.5	Std.	0.28	0.237	5.62	5.12
			XH	0.432	0.337		
			Sch. 160	0.719	0.531		
			XXH	0.864	0.674		
6" x 3"	6.62	3.5	Std.	0.28	0.216	5.62	4.88
			XH	0.432	0.3		
			Sch. 160	0.719	0.438		
			XXH	0.864	0.6		
6" x 2-1/2"	6.62	2.88	Std.	0.28	0.203	5.62	4.75
			XH	0.432	0.276		
			Sch. 160	0.719	0.375		
			XXH	0.864	0.552		
6" x 2"	6.62	2.38	Std.	0.28	0.154	5.62	4.75
			XH	0.432	0.218		
			Sch. 160	0.719	0.344		
			XXH	0.864	0.436		
8" x 6"	8.62	6.62	Std.	0.322	0.28	7.00	6.62
			XH	0.5	0.432		
			Sch. 160	0.906	0.719		
			XXH	0.875	0.864		
8" x 5"	8.62	5.56	Std.	0.322	0.258	7.00	6.38
			XH	0.5	0.375		
			Sch. 160	0.906	0.625		
			XXH	0.875	0.75		

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducing Tees (Cont'd)

NPS	Run	Branch	SCH.	Wall Thickness		Reducing TEES	
	O.D	O.D		Run 't'	Branch 't'	Center to Center 'C'	Center to End 'M'
8" x 4"	8.62	4.5	Std.	0.322	0.237	7.00	6.12
			XH	0.5	0.337		
			Sch. 160	0.906	0.531		
			XXH	0.875	0.674		
8" x 3"	8.62	3.5	Std.	0.322	0.216	7.00	6.00
			XH	0.5	0.3		
			Sch. 160	0.906	0.438		
			XXH	0.875	0.6		
10" x 8"	10.75	8.62	Std.	0.365	0.322	8.50	8.00
			XH	0.5	0.5		
			Sch. 160	1.125	0.906		
			XXH	1	0.875		
10" x 6"	10.75	6.62	Std.	0.365	0.28	8.50	7.62
			XH	0.5	0.432		
			Sch. 160	1.125	0.719		
			XXH	1	0.864		
10" x 5"	10.75	5.56	Std.	0.365	0.258	8.50	7.50
			XH	0.5	0.375		
			Sch. 160	1.125	0.625		
			XXH	1	0.75		
10" x 4"	10.75	4.5	Std.	0.365	0.237	8.50	7.25
			XH	0.5	0.337		
			Sch. 160	1.125	0.531		
			XXH	1	0.674		
12" x 10"	12.75	10.75	Std.	0.375	0.365	10.00	9.50
			XH	0.5	0.5		
			Sch. 160	1.312	1.125		
			XXH	1	1		
12" x 8"	12.75	8.62	Std.	0.375	0.322	10.00	9.00
			XH	0.5	0.5		
			Sch. 160	1.312	0.906		
			XXH	1	0.875		
12" x 6"	12.75	6.62	Std.	0.375	0.28	10.00	8.62
			XH	0.5	0.432		
			Sch. 160	1.312	0.179		
			XXH	1	0.864		
12" x 5"	12.75	5.56	Std.	0.375	0.258	10.00	8.50
			XH	0.5	0.375		
			Sch. 160	1.312	0.625		
			XXH	1	0.75		
12" x 4"	12.75	4.5	Std.	0.375	0.237	10.00	8.50
			XH	0.5	0.337		
			Sch. 160	1.312	0.531		
			XXH	1	0.674		

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducing Tees (Cont'd)

NPS	Run	Branch	SCH.	Wall Thickness		Reducing TEES	
	O.D	O.D		Run 't'	Branch 't'	Center to Center 'C'	Center to End 'M'
14" x 12"	14.00	12.75	Std.	0.375	0.375	11.00	10.62
			XH	0.5	0.5		
			Sch. 160	1.406	1.312		
			XXH	—	—		
14" x 10"	14.00	10.75	Std.	0.375	0.365	11.00	10.12
			XH	0.5	0.5		
			Sch. 160	1.406	1.125		
			XXH	—	—		
14" x 8"	14.00	8.62	Std.	0.375	0.322	11.00	9.75
			XH	0.5	0.5		
			Sch. 160	1.406	0.906		
			XXH	—	—		
14" x 6"	14.00	6.62	Std.	0.375	0.28	11.00	9.38
			XH	0.5	—		
			Sch. 160	1.406	0.719		
			XXH	—	—		
16" x 14"	16.00	14	Std.	0.375	0.375	12.00	12.00
			XH	0.5	0.5		
			Sch. 160	1.594	1.406		
			XXH	—	—		
16" x 12"	16.00	12.75	Std.	0.375	0.375	12.00	11.62
			XH	0.5	0.5		
			Sch. 160	1.594	1.312		
			XXH	—	—		
16" x 10"	16.00	10.75	Std.	0.375	0.365	12.00	11.12
			XH	0.5	0.5		
			Sch. 160	1.594	1.125		
			XXH	—	—		
16" x 8"	16.00	8.62	Std.	0.375	0.322	12.00	10.75
			XH	0.5	0.5		
			Sch. 160	1.594	0.906		
			XXH	—	—		
18" x 16"	18.00	16	Std.	0.375	0.375	13.50	13.00
			XH	0.5	0.5		
			Sch. 160	1.781	1.594		
			XXH	—	—		
18" x 14"	18.00	14	Std.	0.375	0.375	13.50	13.00
			XH	0.5	0.5		
			Sch. 160	1.781	1.406		
			XXH	—	—		
18" x 12"	18.00	12.75	Std.	0.375	0.375	13.50	12.62
			XH	0.5	0.5		
			Sch. 160	1.781	1.312		
			XXH	—	—		

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

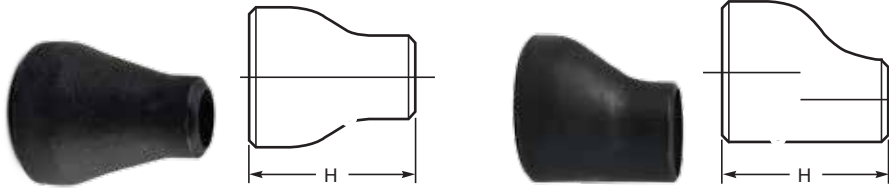
Reducing Tees (Cont'd)

NPS	Run	Branch	SCH.	Wall Thickness		Reducing TEES	
	O.D	O.D		Run 't'	Branch 't'	Center to Center 'C'	Center to End 'M'
18" x 10"	18.00	10.75	Std.	0.375	0.365	13.50	12.12
			XH	0.5	0.5		
			Sch. 160	1.781	1.125		
			XXH	—	—		
18" x 8"	18.00	8.62	Std.	0.375	0.322	13.50	11.75
			XH	0.5	0.5		
			Sch. 160	1.781	0.906		
			XXH	—	—		
20" x 18"	20.00	18	Std.	0.375	0.375	15.00	14.50
			XH	0.5	0.5		
			Sch. 160	1.969	1.781		
			XXH	—	—		
20" x 16"	20.00	16	Std.	0.375	0.375	15.00	14.00
			XH	0.5	0.5		
			Sch. 160	1.969	1.594		
			XXH	—	—		
20" x 14"	20.00	14	Std.	0.375	0.375	15.00	14.00
			XH	0.5	0.5		
			Sch. 160	1.969	1.406		
			XXH	—	—		
20" x 12"	20.00	12.75	Std.	0.375	0.375	15.00	13.62
			XH	0.5	0.5		
			Sch. 160	1.969	1.312		
			XXH	—	—		
24" x 20"	24.00	20	Std.	0.375	0.375	17.00	17.00
			XH	0.5	0.5		
			Sch. 160	2.344	1.969		
			XXH	—	—		
24" x 18"	24.00	18	Std.	0.375	0.375	17.00	16.50
			XH	0.5	0.5		
			Sch. 160	2.344	1.781		
			XXH	—	—		
24" x 16"	24.00	16	Std.	0.375	0.375	17.00	16.00
			XH	0.5	0.5		
			Sch. 160	2.344	1.594		
			XXH	—	—		
24" x 14"	24.00	14	Std.	0.375	0.375	17.00	16.00
			XH	0.5	0.5		
			Sch. 160	2.344	1.406		
			XXH	—	—		

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducers



NPS	SCH.	Large Diameter		Small Diameter		Length
		O.D	Wall Thickness	O.D	Wall Thickness	End to End 'H'
3/4" x 1/2"	Std.	1.05	0.113	0.84	0.109	1.50
	XH		0.154		0.147	
	Sch. 160		0.219		0.188	
	XXH		0.308		0.294	
1" x 3/4"	Std.	1.32	0.133	1.05	0.113	2.00
	XH		0.179		0.154	
	Sch. 160		0.250		0.219	
	XXH		0.358		0.308	
1" x 1/2"	Std.	1.32	0.133	0.84	0.109	2.00
	XH		0.179		0.147	
	Sch. 160		0.250		0.188	
	XXH		0.358		0.294	
1-1/4" x 1"	Std.	1.66	0.140	1.32	0.133	2.00
	XH		0.191		0.179	
	Sch. 160		0.250		0.250	
	XXH		0.382		0.358	
1-1/4" x 3/4"	Std.	2.66	0.140	2.32	0.113	2.00
	XH		0.191		0.154	
	Sch. 160		0.250		0.219	
	XXH		0.382		0.308	
1-1/4" x 1/2"	Std.	1.66	0.140	1.05	0.109	2.00
	XH		0.191		0.147	
	Sch. 160		0.250		0.188	
	XXH		0.382		0.294	
1-1/2" x 1-1/4"	Std.	1.90	0.145	1.66	0.140	2.50
	XH		0.200		0.191	
	Sch. 160		0.281		0.250	
	XXH		0.400		0.382	
1-1/2" x 1"	Std.	1.90	0.145	1.32	0.133	2.50
	XH		0.200		0.179	
	Sch. 160		0.281		0.250	
	XXH		0.400		0.358	

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducers (Cont'd)

NPS	SCH.	Large Diameter		Small Diameter		Length
		O.D	Wall Thickness	O.D	Wall Thickness	End to End 'H'
1-1/2" x 3/4"	Std.	1.90	0.145	1.05	0.113	2.50
	XH		0.200		0.154	
	Sch. 160		0.281		0.219	
	XXH		0.400		0.308	
1-1/2" x 1/2"	Std.	1.90	0.145	0.84	0.109	2.50
	XH		0.200		0.147	
	Sch. 160		0.281		0.188	
	XXH		0.400		0.294	
2" x 1-1/2"	Std.	2.38	0.154	1.90	0.145	3.00
	XH		0.218		0.200	
	Sch. 160		0.344		0.281	
	XXH		0.436		0.400	
2" x 1-1/4"	Std.	2.38	0.154	1.66	0.140	3.00
	XH		0.218		0.191	
	Sch. 160		0.344		0.250	
	XXH		0.436		0.382	
2" x 1"	Std.	2.38	0.154	1.32	0.133	3.00
	XH		0.218		0.179	
	Sch. 160		0.344		0.250	
	XXH		0.436		0.358	
2" x 3/4"	Std.	2.38	0.154	1.05	0.113	3.00
	XH		0.218		0.154	
	Sch. 160		0.344		0.219	
	XXH		0.436		0.308	
2-1/2" x 2"	Std.	2.88	0.203	2.38	0.154	3.50
	XH		0.276		0.218	
	Sch. 160		0.375		0.344	
	XXH		0.552		0.436	
2-1/2" x 1-1/2"	Std.	2.88	0.203	1.9	0.145	3.50
	XH		0.276		0.200	
	Sch. 160		0.375		0.281	
	XXH		0.552		0.400	
2-1/2" x 1-1/4"	Std.	2.88	0.203	1.66	0.140	3.50
	XH		0.276		0.191	
	Sch. 160		0.375		0.250	
	XXH		0.552		0.382	
2-1/2" x 1"	Std.	2.88	0.203	1.32	0.133	3.50
	XH		0.276		0.179	
	Sch. 160		0.375		0.250	
	XXH		0.552		0.358	

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducers (Cont'd)

NPS	SCH.	Large Diameter		Small Diameter		Length
		O.D	Wall Thickness	O.D	Wall Thickness	End to End 'H'
3" x 2-1/2"	Std.	3.50	0.216	2.88	0.203	3.50
	XH		0.300		0.276	
	Sch. 160		0.438		0.375	
	XXH		0.600		0.552	
3" x 2"	Std.	3.50	0.216	2.38	0.154	3.50
	XH		0.3		0.218	
	Sch. 160		0.438		0.344	
	XXH		0.6		0.436	
3" x 1-1/2"	Std.	3.50	0.216	1.90	0.145	3.50
	XH		0.3		0.2	
	Sch. 160		0.438		0.281	
	XXH		0.6		0.4	
3" x 1-1/4"	Std.	3.50	0.216	1.66	0.14	3.50
	XH		0.3		0.191	
	Sch. 160		0.438		0.25	
	XXH		0.6		0.382	
3" x 1"	Std.	3.50	0.216	1.32	0.133	3.50
	XH		0.3		0.179	
	Sch. 160		0.438		0.25	
	XXH		0.6		0.358	
4" x 3"	Std.	4.50	0.237	3.50	0.216	4.00
	XH		0.337		0.3	
	Sch. 160		0.531		0.438	
	XXH		0.674		0.6	
4" x 2-1/2"	Std.	4.50	0.237	2.88	0.203	4.00
	XH		0.337		0.276	
	Sch. 160		0.531		0.375	
	XXH		0.674		0.552	
4" x 2"	Std.	4.50	0.237	2.38	0.154	4.00
	XH		0.337		0.218	
	Sch. 160		0.531		0.344	
	XXH		0.674		0.436	
4" x 1-1/2"	Std.	4.50	0.237	1.9	0.145	4.00
	XH		0.337		0.2	
	Sch. 160		0.531		0.281	
	XXH		0.674		0.4	
5" x 4"	Std.	5.56	0.258	4.5	0.237	5.00
	XH		0.375		0.337	
	Sch. 160		0.625		0.531	
	XXH		0.75		0.674	

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducers (Cont'd)

NPS	SCH.	Large Diameter		Small Diameter		Length
		O.D	Wall Thickness	O.D	Wall Thickness	End to End 'H'
5" x 3"	Std.	5.56	0.258	3.5	0.216	5.00
	XH		0.375		0.3	
	Sch. 160		0.625		0.438	
	XXH		0.75		0.6	
5" x 2-1/2"	Std.	5.56	0.258	2.88	0.203	5.00
	XH		0.375		0.276	
	Sch. 160		0.625		0.375	
	XXH		0.75		0.552	
5" x 2"	Std.	5.56	0.258	2.38	0.154	5.00
	XH		0.375		0.218	
	Sch. 160		0.625		0.344	
	XXH		0.75		0.436	
6" x 5"	Std.	6.62	0.28	5.56	0.258	5.50
	XH		0.432		0.375	
	Sch. 160		0.719		0.625	
	XXH		0.864		0.75	
6" x 4"	Std.	6.62	0.28	4.5	0.237	5.50
	XH		0.432		0.337	
	Sch. 160		0.719		0.531	
	XXH		0.864		0.674	
6" x 3"	Std.	6.62	0.28	3.5	0.216	5.50
	XH		0.432		0.3	
	Sch. 160		0.719		0.438	
	XXH		0.864		0.6	
6" x 2-1/2"	Std.	6.62	0.28	2.88	0.203	5.50
	XH		0.432		0.276	
	Sch. 160		0.719		0.375	
	XXH		0.864		0.552	
6" x 2"	Std.	6.62	0.28	2.38	0.154	5.50
	XH		0.432		0.218	
	Sch. 160		0.719		0.344	
	XXH		0.864		0.436	
8" x 6"	Std.	8.62	0.322	6.62	0.28	6.00
	XH		0.5		0.432	
	Sch. 160		0.906		0.719	
	XXH		0.875		0.864	
8" x 5"	Std.	8.62	0.322	5.56	0.258	6.00
	XH		0.5		0.375	
	Sch. 160		0.906		0.625	
	XXH		0.875		0.75	

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducers (Cont'd)

NPS	SCH.	Large Diameter		Small Diameter		Length
		O.D	Wall Thickness	O.D	Wall Thickness	End to End 'H'
8" x 4"	Std.	8.62	0.322	4.5	0.237	6.00
	XH		0.5		0.337	
	Sch. 160		0.906		0.531	
	XXH		0.875		0.674	
8" x 3"	Std.	8.62	0.322	3.5	0.216	6.00
	XH		0.5		0.3	
	Sch. 160		0.906		0.438	
	XXH		0.875		0.6	
10" x 8"	Std.	10.75	0.365	8.62	0.322	7.00
	XH		0.5		0.5	
	Sch. 160		1.125		0.906	
	XXH		1		0.875	
10" x 6"	Std.	10.75	0.365	6.62	0.28	7.00
	XH		0.5		0.432	
	Sch. 160		1.125		0.719	
	XXH		1		0.864	
10" x 5"	Std.	10.75	0.365	5.56	0.258	7.00
	XH		0.5		0.375	
	Sch. 160		1.125		0.625	
	XXH		1		0.75	
10" x 4"	Std.	10.75	0.365	4.5	0.237	7.00
	XH		0.5		0.337	
	Sch. 160		1.125		0.531	
	XXH		1		0.674	
12" x 10"	Std.	12.75	0.375	10.75	0.365	8.00
	XH		0.5		0.5	
	Sch. 160		1.312		1.125	
	XXH		1		1	
12" x 8"	Std.	12.75	0.375	8.62	0.322	8.00
	XH		0.5		0.5	
	Sch. 160		1.312		0.906	
	XXH		1		0.875	
12" x 6"	Std.	12.75	0.375	6.62	0.28	8.00
	XH		0.5		0.432	
	Sch. 160		1.312		0.179	
	XXH		1		0.864	
12" x 5"	Std.	12.75	0.375	5.56	0.258	8.00
	XH		0.5		0.375	
	Sch. 160		1.312		0.625	
	XXH		1		0.75	

BUTT WELD FITTINGS

Standard, XH, SCH. 160 & XXH Dimensions (IN)

Reducers (Cont'd)

NPS	SCH.	Large Diameter		Small Diameter		Length
		O.D	Wall Thickness	O.D	Wall Thickness	End to End 'H'
12" x 4"	Std.	12.75	0.375	4.5	0.237	8.00
	XH		0.5		0.337	
	Sch. 160		1.312		0.531	
	XXH		1		0.674	
14" x 12"	Std.	14.00	0.375	12.75	0.375	13.00
	XH		0.5		0.5	
	Sch. 160		1.406		1.312	
	XXH		—		—	
14" x 10"	Std.	14.00	0.375	10.75	0.365	13.00
	XH		0.5		0.5	
	Sch. 160		1.406		1.125	
	XXH		—		—	
14" x 8"	Std.	14.00	0.375	8.62	0.322	13.00
	XH		0.5		0.5	
	Sch. 160		1.406		0.906	
	XXH		—		—	
14" x 6"	Std.	14.00	0.375	6.62	0.28	13.00
	XH		0.5		—	
	Sch. 160		1.406		0.719	
	XXH		—		—	
16" x 14"	Std.	16.00	0.375	14	0.375	14.00
	XH		0.5		0.5	
	Sch. 160		1.594		1.406	
	XXH		—		—	
16" x 12"	Std.	16.00	0.375	12.75	0.375	14.00
	XH		0.5		0.5	
	Sch. 160		1.594		1.312	
	XXH		—		—	
16" x 10"	Std.	16.00	0.375	10.75	0.365	14.00
	XH		0.5		0.5	
	Sch. 160		1.594		1.125	
	XXH		—		—	
16" x 8"	Std.	16.00	0.375	8.62	0.322	14.00
	XH		0.5		0.5	
	Sch. 160		1.594		0.906	
	XXH		—		—	
18" x 16"	Std.	18.00	0.375	16	0.375	15.00
	XH		0.5		0.5	
	Sch. 160		1.781		1.594	
	XXH		—		—	