

平焊管道接头  
**BUTT-WELD  
FITTINGS**



# Fittings, Flanges And Pipes Commonly Used

<b>Classification</b>	<b>Pipe</b>	<b>B.W.Fittings</b>	<b>Flanges</b>
<b>Carbon Steels</b>	A 106 Grade A A 106 Grade B	A 234 Grade WPA A 234 Grade WPB	A 105 Grade I A 105 Grade II
<b>Alloy Steels</b>	A 335 Grade P 1 A 335 Grade P 5 A 335 Grade P 7 A 335 Grade P 9 A 335 Grade P 11 A 335 Grade P 12 A 335 Grade P 22	A 234 Grade WP 1 A 234 Grade WP 5 A 234 Grade WP 7 A 234 Grade WP 9 A 234 Grade WP 11 A 234 Grade WP 12 A 234 Grade WP 22	A 182 Grade F 1 A 182 Grade F 5 A 182 Grade F 7 A 182 Grade F 9 A 182 Grade F 11 A 182 Grade F 12 A 182 Grade F 22
<b>Steels for Low - Temperature Service</b>	A 333 Grade 1 A 333 Grade 3 A 333 Grade 4 A 333 Grade 6 A 333 Grade 8	A 420 Grade WPL 1 A 420 Grade WPL 3 A 420 Grade WPL 4 A 420 Grade WPL 6 A 420 Grade WPL 8	A 350 Grade LF 1 A 350 Grade LF 3 A 350 Grade LF 4 A 350 Grade LF 6 A 350 Grade LF 8
<b>Stainless Steel</b>	A 312 Grade TP 304 A 312 Grade TP 304H A 312 Grade TP 304L A 312 Grade TP 316 A 312 Grade TP 316H A 312 Grade TP 316L A 312 Grade TP 321 A 312 Grade TP 321H A 312 Grade TP 347 A 312 Grade TP 347 A 312 Grade TP 347H	A 403 Grade WP 304 A 403 Grade WP 304H A 403 Grade WP 304L A 403 Grade WP 316 A 403 Grade WP 316H A 403 Grade WP 316L A 403 Grade WP 321 A 403 Grade WP 321H A 403 Grade WP 347 A 403 Grade WP 347 A 403 Grade WP 347H	A 182 Grade F 304 A 182 Grade F 304H A 182 Grade F 304L A 182 Grade F 316 A 182 Grade F 316H A 182 Grade F 316L A 182 Grade F 321 A 182 Grade F 321H A 182 Grade F 347 A 182 Grade F 347 A 182 Grade F 347H

**NOTES :**

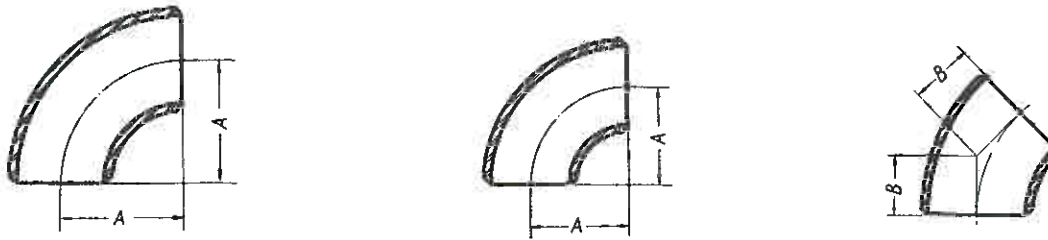
1. For materials and grades other than those given above, please refer to steel groups listed on succeeding pages, or to technical sections herein under pipes, flanges, and fittings.
2. Materials can also be supplied in accordance to API, ASTM, DIN, BS, UNS, ISO and other international specifications.

# SEAMLESS BUTT WELDING FITTINGS

Standard Wall and Extra Strong Wall (A)

平焊弯头

## 90° and 45° ELBOWS



ASA B16.9 MSS SP-48 ASA B16.28

Nominal Pipe Size	90° Elbows						45° Elbows			
	Long Radius			Short Radius			Long Radius			
	Center to End A	Approx. Weight (lbs)		Center to End A	Approx. Weight (lbs)		Radius A	Center to End B	Approx. Weight (lbs)	
		STD	XS		STD	XS			STD	XS
1/2	1 1/2	.17	.22	—	—	—	1 1/2	5/8	.09	.11
3/4	1 1/8	.17	.22	—	—	—	1 1/8	7/16	.09	.11
1	1 1/2	.34	.43	1	.23	—	1 1/2	7/8	.24	.30
1 1/4	1 7/8	.58	.75	1 1/4	.38	—	1 7/8	1	.37	.48
1 1/2	2 1/4	.83	1.06	1 1/2	.55	.72	2 1/4	1 1/8	.50	.65
2	3	1.49	2.00	2	.99	1.33	3	1 3/8	.82	1.09
2 1/2	3 3/4	2.92	3.82	2 1/2	1.93	2.51	3 3/4	1 3/4	1.64	2.10
3	4 1/2	4.58	6.12	3	3.04	4.04	4 1/2	2	2.43	3.23
3 1/2	5 1/4	6.43	8.72	3 1/2	4.26	5.76	5 1/4	2 1/4	3.29	4.42
4	6	8.70	11.9	4	5.77	7.89	6	2 1/2	4.31	5.86
5	7 1/2	14.7	20.6	5	9.75	13.7	7 1/2	3 1/8	7.30	10.2
6	9	22.9	34.1	6	15.2	22.6	9	3 3/4	11.3	16.7
8	12	46.0	69.1	8	30.5	45.6	12	5	22.8	34.0
10	15	81.5	109	10	54.0	72.5	15	6 1/4	40.4	53.9
12	18	119	157	12	79.5	104.	18	7 1/2	59.5	78.3
14	21	154	202	14	102	135.	21	8 3/4	76.5	100
16	24	201	265	16	135	177.	24	10	100	132
18	27	256	338	18	171	225.	27	11 1/4	128	168
20	30	317	419	20	212	278.	30	12 1/2	158	208
22	33	385	508	—	—	—	33	13 1/2	192	253
24	36	458	606	24	305	404.	36	15	229	312
26	39	539	713	—	—	—	39	16	269	355
30	45	720	953	30	480	634.	45	18 1/2	358	475
36	54	1040	1380	36	692	913.	54	22 1/4	518	686

All dimensions are in inches.

Every thickness conforms to those for standard wall and extra strong wall pipe (ASA B 36.10).

STD designates standard wall and XS designates extra strong wall.

Pressure-temperature ratings are identical with those of seamless pipe of the same size, thickness or schedule, and material grade.

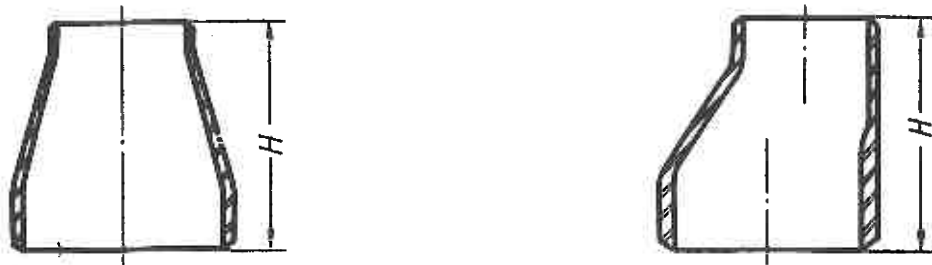
Size 24" to 36" are welded two seam longitudinally.

# SEAMLESS BUTT WELDING FITTINGS (3)

Standard Wall and Extra Strong Wall (C)

平焊变径接头

## REDUCERS-Concentric and Eccentric



ASA B16. 9

Nominal Pipe Size					End to End H	Approx. Weight (lbs)	
Large End	Small End			STD		XS	
3/4	1/2	—	—	—	1 1/2	.15	.22
1	3/4	1/2	—	—	2	.28	.36
1 1/4	1	3/4	1/2	—	2	.38	.50
1 1/2	1 1/4	1 1/4	3/4	1/2	2 1/2	.57	.76
2	1 1/2	1 1/4	1	3/4	3	.90	1.25
2 1/2	2	1 1/2	1 1/4	1	3 1/2	1.70	2.23
3	2 1/2	2	1 1/2	1 1/4	3 1/2	2.20	2.99
3 1/2	3	2 1/2	2	1 1/2	4	3.00	4.16
4	3 1/2	3	2 1/2	2	4	3.60	5.00
5	4	3 1/2	3	2 1/2	5	6.10	8.65
6	5	4	3 1/2	3	5 1/2	8.70	13.1
8	6	5	4	3 1/2	6	14.3	21.7
10	8	6	5	4	7	23.6	31.9
12	10	8	6	5	8	33.1	43.6
14	12	10	8	—	13	59.2	78.3
16	14	12	10	—	14	73.0	97.0

All dimensions are in inches.

For bevel detail see page 31

Every thickness conforms to those for standard wall and extra strong wall pipe (ASA B 36.10).

STD designates standard wall, and XS designates extra strong wall.

Pressure-temperature ratings are identical with those of seamless pipe of the same size, thickness or schedule, and material grade. For dimensional tolerance see page 30

18" is seamless, but a scope of this small end is limited. 20" and 20" up are the bucket type welded longitudinally according to AWWA C208-59.

## Standard Wall and Extra Strong Wall (4)

### TEES-Straight and Reducing



# SEAMLESS BUTT WELDING FITTINGS

TEES—Straight and Reducing

平焊三通及变径三通

ASA B16.9

Continued from preceding page

Nominal Pipe Size		Center to End		Approx. Weight (lbs)		Nominal Pipe Size		Center to End		Approx. Weight (lbs)	
Run	Branch	C	M	STD	XS	Run	Branch	C	M	STD	XS
1/2	1/2	1	1	.25	.36	3 1/2	3 1/2	3 3/4	3 3/4	9.85	12.6
	3/8	1	1	.23	.28		3	3 3/4	3 3/8	9.01	11.7
3/4	3/4	1 1/8	1 1/8	.37	.46		2 1/2	3 3/4	3 1/2	8.79	11.5
	1/2	1 1/8	1 1/8	.34	.42		2	3 3/4	3 1/4	8.48	11.2
	3/8	1 1/8	1 1/8	.33	.41		1 1/2	3 3/4	3 1/8	8.48	11.1
1	1	1 1/2	1 1/2	.76	.93		4	4	4 1/8	4 1/8	12.6
	3/4	1 1/2	1 1/2	.65	.80	3 1/2		4 1/8	4	11.6	15.3
	1/2	1 1/2	1 1/2	.64	.79	3		4 1/8	3 7/8	11.4	15.0
	3/8	1 1/2	1 1/2	.64	.79	2 1/2		4 1/8	3 3/4	11.3	14.7
1 1/4	1 1/4	1 7/8	1 7/8	1.34	1.64	5	2	4 1/8	3 1/2	11.0	14.5
	1	1 7/8	1 7/8	1.17	1.45		1 1/2	4 1/8	3 3/8	10.9	14.4
	3/4	1 7/8	1 7/8	1.11	1.38		5	4 7/8	4 7/8	19.8	26.4
1 1/2	1 1/2	2 1/4	2 1/4	2.02	2.48		4	4 7/8	4 3/8	18.1	24.2
	1 1/4	2 1/4	2 1/4	1.76	2.20		3 1/2	4 7/8	4 1/2	17.8	23.9
	1	2 1/4	2 1/4	1.68	2.09		3	4 7/8	4 3/8	17.6	23.7
	3/4	2 1/4	2 1/4	1.61	2.03	2 1/2	4 7/8	4 3/8	17.4	23.6	
2	2	2 1/2	2 1/2	2.96	3.73	2	4 7/8	4 1/8	17.2	23.4	
	1 1/2	2 1/2	2 3/8	2.66	3.40	6	6	5 3/8	5 3/8	29.3	42.0
	1 1/4	2 1/2	2 1/4	2.45	3.26		5	5 3/8	5 3/8	26.7	37.8
	1	2 1/2	2	2.47	3.17		4	5 3/8	5 1/8	26.2	37.2
	3/4	2 1/2	1 3/4	2.41	3.11		3 1/2	5 3/8	5	26.0	37.1
2 1/2		1 3/4	2.41	3.11	3		5 3/8	4 7/8	25.8	36.9	
2 1/2	2 1/2	3	3	5.21	6.44	2 1/2	5 3/8	4 3/4	25.7	36.9	
	2	3	2 1/4	4.58	5.75	8	8	7	7	53.7	76.4
	1 1/2	3	2 5/8	4.50	5.66		6	7	6 3/8	48.7	70.4
	1 1/4	3	2 1/2	4.39	5.53		5	7	6 3/8	48.1	69.5
	1	3	2 1/4	4.33	5.46		4	7	6 1/8	47.9	69.3
3		2 1/4	4.33	5.46	3 1/2		7	6	47.7	69.1	
3	3	3 3/8	3 3/8	7.44	9.45	10	10	8 1/2	8 1/2	91.2	118
	2 1/4	3 3/8	3 1/4	6.81	8.60		8	8 1/2	8	83.0	109
	2	3 3/8	3	6.51	8.36		6	8 1/2	7 5/8	81.7	108
	1 1/2	3 3/8	2 7/8	6.44	8.30		5	8 1/2	7 1/2	81.4	106
	1 1/4	3 3/8	2 3/4	6.34	8.17		12	12	10	10	132
3	3	3 3/8	3 3/8	7.44	9.45	10		10	9 1/2	121	155
	2 1/4	3 3/8	3 1/4	6.81	8.60	8		10	9	118	153
	2	3 3/8	3	6.51	8.36	6		10	8 5/8	117	151
	1 1/2	3 3/8	2 7/8	6.44	8.30	14		14	11	11	168
	1 1/4	3 3/8	2 3/4	6.34	8.17		12	11	10 3/8	144	186
3	3	3 3/8	3 3/8	7.44	9.45		10	11	10 1/8	138	178
	2 1/4	3 3/8	3 1/4	6.81	8.60		8	11	9 3/4	136	176
	2	3 3/8	3	6.51	8.36						

All dimensions are in inches.

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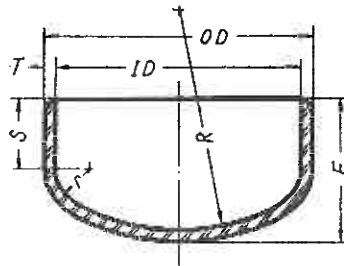
Pressure-temperature ratings are identical with those of seamless pipe of the same size, thickness or schedule, and material grade.

16" and 16" up are in the construction in which the run and the branch are mitted according to AWWA C208-59, except Straight Tee of 16" STD which is seamless.



Standard Wall

CAPS



ASA B16.9

Nominal Pipe Size	Outside Diameter O. D.	Inside Diameter I. D.	Wall Thickness T	Length E	Tangent S	Dish Radius R	Knuckle Radius r	Pipe Schedule Numbers	Approximate Weight (lbs)
1/2	.840	.622	.109	1	.74	.54	.10	40	.07
3/4	1.050	.824	.113	1 1/4	.93	.72	.14	40	.13
1	1.315	1.049	.133	1 1/2	1.10	.92	.17	40	.23
1 1/4	1.660	1.380	.140	1 1/2	1.02	1.35	.23	40	.31
1 1/2	1.900	1.610	.145	1 1/2	.95	1.41	.27	40	.37
2	2.375	2.067	.154	1 1/2	.83	1.81	.34	40	.51
2 1/2	2.875	2.469	.203	1 1/2	.68	2.15	.41	40	.81
3	3.500	3.068	.216	2	1.02	2.69	.51	40	1.41
3 1/2	4.000	3.548	.226	2 1/2	1.39	3.11	.59	40	2.12
4	4.500	4.026	.237	2 1/2	1.26	3.52	.67	40	2.55
5	5.563	5.047	.258	3	1.48	4.42	.84	40	4.20
6	6.625	6.065	.280	3 1/2	1.70	5.31	1.01	40	6.41
8	8.625	7.981	.322	4	1.68	6.98	1.33	40	11.3
10	10.750	10.020	.365	5	2.13	8.77	1.67	40	20.0
12	12.750	12.000	.375	6	2.62	10.50	2.00	STD	29.5
14	14.000	13.250	.375	6 1/2	2.81	11.60	2.21	30	35.3
16	16.000	15.250	.375	7	2.81	13.34	2.54	30	44.3
18	18.000	17.250	.375	8	3.31	15.08	2.88	STD	57.1
20	20.000	19.250	.375	9	3.81	16.84	3.21	20	71.7
22	22.000	21.250	.375	10	4.31	18.60	3.54	STD	86.5
24	24.000	23.250	.375	10 1/2	4.31	20.34	3.88	20	102
26	26.000	25.250	.375	10 1/2	3.81	22.10	4.21	STD	110
30	30.000	29.250	.375	10 1/2	2.81	25.60	4.88	STD	125
34	34.000	33.250	.375	10 1/2	1.81	29.10	5.54	STD	160
36	36.000	35.250	.375	10 1/2	1.31	30.85	5.88	STD	175
42	42.000	41.250	.375	12	1.31	36.10	6.88	STD	230

All dimensions are in inches.

Pressure-temperature ratings are identical with those of seamless pipe of the same size, thickness or schedule, and material grade.

Every thickness conforms to standard wall pipe (ASA B 36.10).

STD designates standard wall.