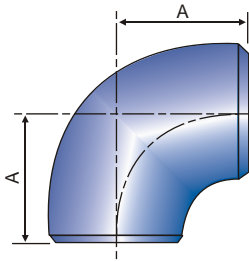


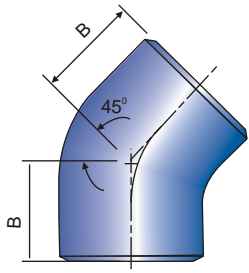


BUTT WELDED FITTINGS (ASME B 16.9)

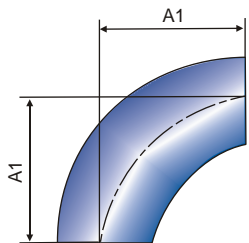
*All dimensions are in inches.



**Straight type
Long Radius
Elbow (90°)**



**Straight type
Long Radius
Elbow (45°)**



**Reducing type
Long Radius
Elbow (90°)**

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	CENTER-TO-END	
		90 DEG. ELBOWS A.	45 DEG. ELBOWS B.
1/2	0.84	1.50	0.62
3/4	1.05	1.50	0.75
1	1.32	1.50	0.88
1 1/4	1.66	1.88	1.00
1 1/2	1.90	2.25	1.12
2	2.38	3.00	1.38
2 1/2	2.88	3.75	1.75
3	3.50	4.50	2.00
3 1/2	4.00	5.25	2.25
4	4.50	6.00	2.50
5	5.56	7.50	3.12
6	6.62	9.00	3.75
8	8.62	12.00	5.00
10	10.75	15.00	6.25
12	12.75	18.00	7.50
14	14.00	21.00	8.75

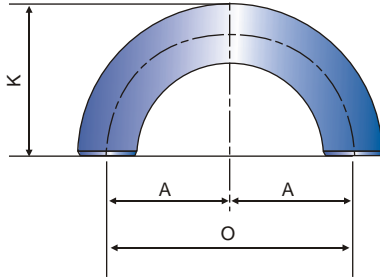
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	CENTER-TO-END	
		90 DEG. ELBOWS A.	45 DEG. ELBOWS B.
16	16.00	24.00	10.00
18	18.00	27.00	11.25
20	20.00	30.00	12.50
22	22.00	33.00	13.50
24	24.00	36.00	15.00
26	26.00	39.00	16.00
28	28.00	42.00	17.25
30	30.00	45.00	18.50
32	32.00	48.00	19.75
34	34.00	51.00	21.00
36	36.00	54.00	22.25
38	38.00	57.00	23.62
40	40.00	60.00	24.88
42	42.00	63.00	26.00
44	44.00	66.00	27.38
46	46.00	69.00	28.62
48	48.00	72.00	29.88

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D		CENTER- TO- END A1.
	LARGE END	SMALL END	
2 x 1 1/2	2.38	1.90	3.00
2 x 1 1/4	2.38	1.66	3.00
2 x 1	2.38	1.32	3.00
2 1/2 x 2	2.88	2.38	3.75
2 1/2 x 1 1/2	2.88	1.90	3.75
2 1/2 x 1 1/4	2.88	1.66	3.75
3 x 2 1/2	3.50	2.88	4.50
3 x 2	3.50	2.38	4.50
3 x 1 1/2	3.50	1.90	4.50
3 1/2 x 3	4.00	3.50	5.25
3 1/2 x 2 1/2	4.00	2.88	5.25
3 1/2 x 2	4.00	2.38	5.25
4 x 3 1/2	4.50	4.00	6.00
4 x 3	4.50	3.50	6.00
4 x 2 1/2	4.50	2.88	6.00
4 x 2	4.50	2.38	6.00
5 x 4	5.56	4.50	7.50
5 x 3 1/2	5.56	4.00	7.50
5 x 3	5.56	3.50	7.50
5 x 2 1/2	5.56	2.88	7.50
6 x 5	6.62	5.56	9.00
6 x 4	6.62	4.50	9.00
6 x 3 1/2	6.62	4.00	9.00
6 x 3	6.62	3.50	9.00
8 x 6	8.62	6.62	12.00
8 x 5	8.62	5.56	12.00
8 x 4	8.62	4.50	12.00

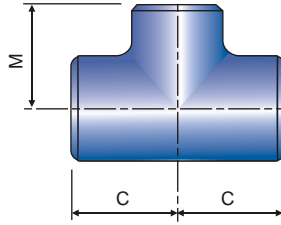
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER- TO- END A1.
	LARGE END	SMALL END	
10 x 8	10.75	8.62	15.00
10 x 6	10.75	6.62	15.00
10 x 5	10.75	5.56	15.00
12 x 10	12.75	10.75	18.00
12 x 8	12.75	8.62	18.00
12 x 6	12.75	6.62	18.00
14 x 12	14.00	12.75	21.00
14 x 10	14.00	10.75	21.00
14 x 8	14.00	8.62	21.00
16 x 14	16.00	14.00	24.00
16 x 12	16.00	12.75	24.00
16 x 10	16.00	10.75	24.00
18 x 16	18.00	16.00	27.00
18 x 14	18.00	14.00	27.00
18 x 12	18.00	12.75	27.00
18 x 10	18.00	10.75	27.00
20 x 18	20.00	18.00	30.00
20 x 16	20.00	16.00	30.00
20 x 14	20.00	14.00	30.00
20 x 12	20.00	12.75	30.00
20 x 10	20.00	10.75	30.00
24 x 22	24.00	22.00	36.00
24 x 20	24.00	20.00	36.00
24 x 18	24.00	18.00	36.00
24 x 16	24.00	16.00	36.00
24 x 14	24.00	14.00	36.00
24 x 12	24.00	12.75	36.00



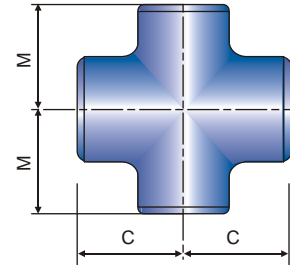
BUTT WELDED FITTINGS (ASME B 16.9)



Long Radius Returns



Straight Tees



Straight Crosses

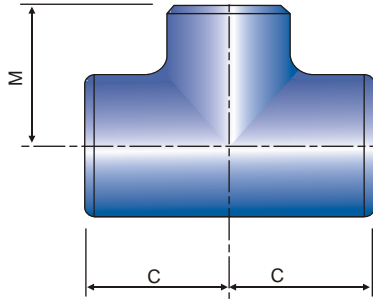
*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	CENTRE -TO- CENTRE O.	BACK -TO- FACE K.
1/2	0.840	3.00	1.875
3/4	1.050	2.25	1.6875
1	1.315	3.00	2.1875
1 1/4	1.660	3.75	2.75
1 1/2	1.900	4.50	3.25
2	2.375	6.00	4.1875
2 1/2	2.875	7.50	5.1875
3	3.500	9.00	6.25
3 1/2	4.000	10.50	7.25
4	4.500	12.00	8.25
5	5.563	15.00	10.3125
6	6.625	18.00	12.3125
8	8.625	24.00	16.3125
10	10.750	30.00	20.375
12	12.750	36.00	24.38
14	14.000	42.00	28.00
16	16.000	48.00	32.00
18	18.000	54.00	36.00
20	20.000	60.00	40.00
22	22.000	66.00	44.00
24	24.000	72.00	48.00

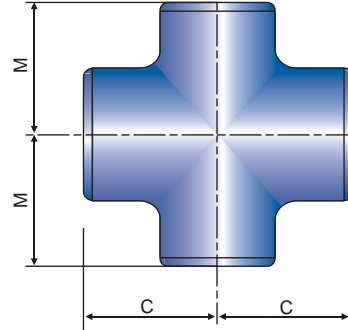
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	CENTER-TO-END	
		RUN C.	OUTLET M.
1/2	0.840	1.00	1.00
3/4	1.050	1.125	1.125
1	1.315	1.50	1.50
1 1/4	1.660	1.875	1.875
1 1/2	1.900	2.25	2.25
2	2.375	2.50	2.50
2 1/2	2.875	3.00	3.00
3	3.500	3.375	3.375
3 1/2	4.000	3.75	3.75
4	4.500	4.125	4.125
5	5.563	4.875	4.875
6	6.625	5.625	5.625
8	8.625	7.00	7.00
10	10.750	8.500	8.50
12	12.750	10.00	10.00
14	14.000	11.00	11.00
16	16.000	12.00	12.00
18	18.000	13.50	13.50
20	20.000	15.00	15.00
22	22.000	16.50	16.50
24	24.000	17.00	17.00
26	26.000	19.50	19.50
28	28.000	20.50	20.50
30	30.000	22.00	22.00
32	32.000	23.50	23.50
34	34.000	25.00	25.00
36	36.000	26.50	26.50
38	38.000	28.00	28.00
40	40.000	29.50	29.50
42	42.000	30.00	28.00
44	44.000	32.00	30.00
46	46.000	33.50	31.50
48	48.000	35.00	33.00



BUTT WELDED FITTINGS (ASME B 16.9)



Reducing Outlet Tees



Reducing Outlet Crosses

Reducing Tees & Crosses

*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER-TO-END	
	RUN	OUTLET	RUN	OUTLET
			C.	M.
1/2 x 1/2 x 1/4	0.840	0.68	1.00	1.00
1/2 x 1/2 x 3/8	0.840	0.54	1.00	1.00
3/4 x 3/4 x 3/8	1.050	0.84	1.12	1.12
3/4 x 3/4 x 1/2	1.010	0.68	1.12	1.12
1 x 1 x 3/4	1.315	1.05	1.50	1.50
1 x 1 x 1/2	1.315	0.84	1.50	1.50
1 1/4 x 1 1/4 x 1	1.66	1.32	1.88	1.88
1 1/4 x 1 1/4 x 3/4	1.66	1.05	1.88	1.88
1 1/4 x 1 1/4 x 1/2	1.66	0.84	1.88	1.88
1 1/2 x 1 1/2 x 1 1/4	1.90	1.66	2.25	2.25
1 1/2 x 1 1/2 x 1	1.90	1.32	2.25	2.25
1 1/2 x 1 1/2 x 3/4	1.90	1.05	2.25	2.25
1 1/2 x 1 1/2 x 1/2	1.90	0.84	2.25	2.25
2 x 2 x 1 1/2	2.375	1.90	2.50	2.38
2 x 2 x 1 1/4	2.375	1.66	2.50	2.25
2 x 2 x 1	2.375	1.32	2.50	2.00
2 x 2 x 3/4	2.375	1.05	2.50	1.75
2 1/2 x 2 1/2 x 2	2.875	2.38	3.00	2.75
2 1/2 x 2 1/2 x 1 1/2	2.875	1.90	3.00	2.62
2 1/2 x 2 1/2 x 1 1/4	2.875	1.66	3.00	2.50
2 1/2 x 2 1/2 x 1	2.875	1.32	3.00	2.25
3 x 3 x 2 1/2	3.50	2.88	3.38	3.25
3 x 3 x 2	3.50	2.38	3.38	3.00
3 x 3 x 1 1/2	3.50	1.90	3.38	2.88
3 x 3 x 1 1/4	3.50	1.66	3.38	2.75
3 1/2 x 3 1/2 x 3	4.00	3.50	3.75	3.62
3 1/2 x 3 1/2 x 2 1/2	4.00	2.88	3.75	3.50
3 1/2 x 3 1/2 x 2	4.00	2.38	3.75	3.25
3 1/2 x 3 1/2 x 1 1/2	4.00	1.90	3.75	3.12
4 x 4 x 3 1/2	4.50	4.00	4.12	4.00
4 x 4 x 3	4.50	3.50	4.12	3.88
4 x 4 x 2 1/2	4.50	2.88	4.12	3.75
4 x 4 x 2	4.50	2.38	4.12	3.50
4 x 4 x 1 1/2	4.50	1.90	4.12	3.38
5 x 5 x 4	5.563	4.50	4.88	4.62
5 x 5 x 3 1/2	5.563	4.00	4.88	4.50
5 x 5 x 3	5.563	3.50	4.88	4.38
5 x 5 x 2 1/2	5.563	2.88	4.88	4.25
5 x 5 x 2	5.563	2.38	4.88	4.12

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER-TO-END	
	RUN	OUTLET	RUN	OUTLET
			C.	M.
6 x 6 x 5	6.625	5.56	5.62	5.38
6 x 6 x 4	6.625	4.50	5.62	5.12
6 x 6 x 3 1/2	6.625	4.00	5.62	5.00
6 x 6 x 3	6.625	3.50	5.62	4.88
6 x 6 x 2 1/2	6.625	2.88	5.62	4.75
8 x 8 x 6	8.625	6.62	7.00	6.62
8 x 8 x 5	8.625	5.56	7.00	6.38
8 x 8 x 4	8.625	4.50	7.00	6.12
8 x 8 x 3 1/2	8.625	4.00	7.00	6.00
10 x 10 x 8	10.75	8.62	8.50	8.00
10 x 10 x 6	10.75	6.62	8.50	7.62
10 x 10 x 5	10.75	5.56	8.50	7.50
10 x 10 x 4	10.75	4.50	8.50	7.25
12 x 12 x 10	12.75	10.75	10.00	9.50
12 x 12 x 8	12.75	8.62	10.00	9.00
12 x 12 x 6	12.75	6.62	10.00	8.62
12 x 12 x 5	12.75	5.56	10.00	8.50
14 x 14 x 12	14.00	12.75	11.00	10.62
14 x 14 x 10	14.00	10.75	11.00	10.12
14 x 14 x 8	14.00	8.62	11.00	9.75
14 x 14 x 6	14.00	6.62	11.00	9.38
16 x 16 x 14	16.00	14.00	12.00	12.00
16 x 16 x 12	16.00	12.75	12.00	11.62
16 x 16 x 10	16.00	10.75	12.00	11.12
16 x 16 x 8	16.00	8.62	12.00	10.75
16 x 16 x 6	16.00	6.62	12.00	10.38
18 x 18 x 16	18.00	16.00	13.50	13.00
18 x 18 x 14	18.00	14.00	13.50	13.00
18 x 18 x 12	18.00	12.75	13.50	12.62
18 x 18 x 10	18.00	10.75	13.50	12.12
18 x 18 x 8	18.00	8.62	13.50	11.75
20 x 20 x 18	20.00	18.00	15.00	14.50
20 x 20 x 16	20.00	16.00	15.00	14.00
20 x 20 x 14	20.00	14.00	15.00	14.00
20 x 20 x 12	20.00	12.75	15.00	13.62
20 x 20 x 10	20.00	10.75	15.00	13.12
20 x 20 x 8	20.00	8.62	15.00	12.75
22 x 22 x 20	22.00	20.00	16.50	16.00
22 x 22 x 18	22.00	18.00	16.50	15.50



BUTT WELDED FITTINGS (ASME B 16.9)

*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER-TO-END	
	RUN	OUTLET	RUN	OUTLET
			C.	M.
22 x 22 x 16	22.00	16.00	16.50	15.00
22 x 22 x 14	22.00	14.00	16.50	15.00
22 x 22 x 12	22.00	12.75	16.50	14.625
22 x 22 x 10	22.00	10.75	16.50	14.125
24 x 24 x 22	24.00	22.00	17.00	17.00
24 x 24 x 20	24.00	20.00	17.00	17.00
24 x 24 x 18	24.00	18.00	17.00	16.50
24 x 24 x 16	24.00	16.00	17.00	16.00
24 x 24 x 14	24.00	14.00	17.00	16.00
24 x 24 x 12	24.00	12.75	17.00	15.625
24 x 24 x 10	24.00	10.75	17.00	15.125
26 x 26 x 24	26.00	24.00	19.50	19.00
26 x 26 x 22	26.00	22.00	19.50	18.50
26 x 26 x 20	26.00	20.00	19.50	18.00
26 x 26 x 18	26.00	18.00	19.50	17.50
26 x 26 x 16	26.00	16.00	19.50	17.00
26 x 26 x 14	26.00	14.00	19.50	17.00
26 x 26 x 12	26.00	12.75	19.50	16.625
28 x 28 x 26	28.00	26.00	20.50	20.50
28 x 28 x 24	28.00	24.00	20.50	20.00
28 x 28 x 22	28.00	22.00	20.50	19.50
28 x 28 x 20	28.00	20.00	20.50	19.00
28 x 28 x 18	28.00	18.00	20.50	18.50
28 x 28 x 16	28.00	16.00	20.50	18.00
28 x 28 x 14	28.00	14.00	20.50	18.00
28 x 28 x 12	28.00	12.75	20.50	17.625
30 x 30 x 28	30.00	28.00	22.00	21.50
30 x 30 x 26	30.00	26.00	22.00	21.50
30 x 30 x 24	30.00	24.00	22.00	21.00
30 x 30 x 22	30.00	22.00	22.00	20.50
30 x 30 x 20	30.00	20.00	22.00	20.00
30 x 30 x 18	30.00	18.00	22.00	19.50
30 x 30 x 16	30.00	16.00	22.00	19.00
30 x 30 x 14	30.00	14.00	22.00	19.00
30 x 30 x 12	30.00	12.75	22.00	18.625
30 x 30 x 10	30.00	10.75	22.00	18.125
32 x 32 x 30	32.00	30.00	23.50	23.00
32 x 32 x 28	32.00	28.00	23.50	22.50
32 x 32 x 26	32.00	26.00	23.50	22.50
32 x 32 x 24	32.00	24.00	23.50	22.00
32 x 32 x 22	32.00	22.00	23.50	21.50
32 x 32 x 20	32.00	20.00	23.50	21.00
32 x 32 x 18	32.00	18.00	23.50	20.50
32 x 32 x 16	32.00	16.00	23.50	20.00
32 x 32 x 14	32.00	14.00	23.50	20.00
34 x 34 x 32	34.00	32.00	25.00	24.50
34 x 34 x 30	34.00	30.00	25.00	24.00
34 x 34 x 28	34.00	28.00	25.00	23.50
34 x 34 x 26	34.00	26.00	25.00	23.50

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER-TO-END	
	RUN	OUTLET	RUN	OUTLET
			C.	M.
34 x 34 x 24	34.00	24.00	25.00	23.00
34 x 34 x 22	34.00	22.00	25.00	22.50
34 x 34 x 20	34.00	20.00	25.00	22.00
34 x 34 x 18	34.00	18.00	25.00	21.50
34 x 34 x 16	34.00	16.00	25.00	21.00
36 x 36 x 34	36.00	34.00	26.50	26.00
36 x 36 x 32	36.00	32.00	26.50	25.50
36 x 36 x 30	36.00	30.00	26.50	25.00
36 x 36 x 28	36.00	28.00	26.50	24.50
36 x 36 x 26	36.00	26.00	26.50	24.50
36 x 36 x 24	36.00	24.00	26.50	24.00
36 x 36 x 22	36.00	22.00	26.50	23.50
36 x 36 x 20	36.00	20.00	26.50	23.00
36 x 36 x 18	36.00	18.00	26.50	22.50
36 x 36 x 16	36.00	16.00	26.50	22.00
38 x 38 x 36	38.00	36.00	28.00	28.00
38 x 38 x 34	38.00	34.00	28.00	27.50
38 x 38 x 32	38.00	32.00	28.00	27.00
38 x 38 x 30	38.00	30.00	28.00	26.50
38 x 38 x 28	38.00	28.00	28.00	25.50
38 x 38 x 26	38.00	26.00	28.00	25.50
38 x 38 x 24	38.00	24.00	28.00	25.00
38 x 38 x 22	38.00	22.00	28.00	24.50
38 x 38 x 20	38.00	20.00	28.00	24.00
38 x 38 x 18	38.00	18.00	28.00	23.50
40 x 40 x 38	40.00	38.00	29.50	29.50
40 x 40 x 36	40.00	36.00	29.50	29.00
40 x 40 x 34	40.00	34.00	29.50	28.50
40 x 40 x 32	40.00	32.00	29.50	28.00
40 x 40 x 30	40.00	30.00	29.50	27.50
40 x 40 x 28	40.00	28.00	29.50	26.50
40 x 40 x 26	40.00	26.00	29.50	26.50
40 x 40 x 24	40.00	24.00	29.50	26.00
40 x 40 x 22	40.00	22.00	29.50	25.50
40 x 40 x 20	40.00	20.00	29.50	25.00
40 x 40 x 18	40.00	18.00	29.50	24.50
42 x 42 x 40	42.00	40.00	30.00	28.00
42 x 42 x 38	42.00	38.00	30.00	28.00
42 x 42 x 36	42.00	36.00	30.00	28.00
42 x 42 x 34	42.00	34.00	30.00	28.00
42 x 42 x 32	42.00	32.00	30.00	28.00
42 x 42 x 30	42.00	30.00	30.00	28.00
42 x 42 x 28	42.00	28.00	30.00	27.50
42 x 42 x 26	42.00	26.00	30.00	27.50
42 x 42 x 24	42.00	24.00	30.00	26.00
42 x 42 x 22	42.00	22.00	30.00	26.00
42 x 42 x 20	42.00	20.00	30.00	26.00
42 x 42 x 18	42.00	18.00	30.00	25.50
42 x 42 x 16	42.00	16.00	30.00	25.00



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)

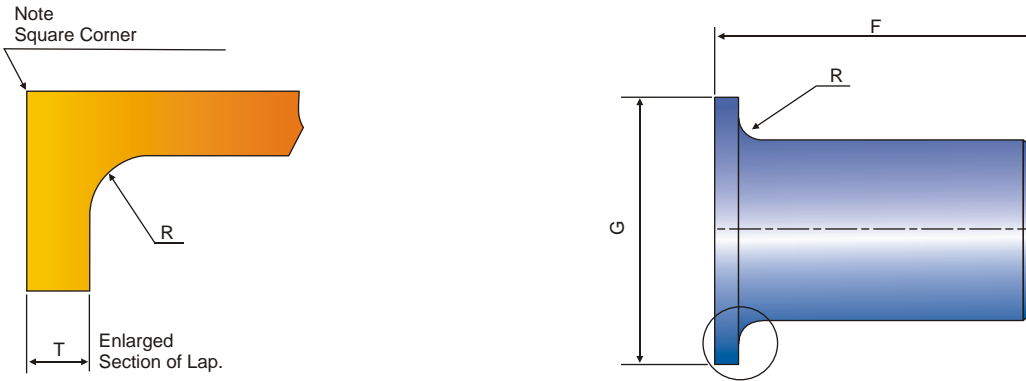
*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		CENTER - TO - END	
	RUN	OUTLET	RUN C.	OUTLET M.
44 x 44 x 42	44.00	42.00	32.00	30.00
44 x 44 x 40	44.00	40.00	32.00	29.50
44 x 44 x 38	44.00	38.00	32.00	29.00
44 x 44 x 36	44.00	36.00	32.00	28.50
44 x 44 x 34	44.00	34.00	32.00	28.50
44 x 44 x 32	44.00	32.00	32.00	28.00
44 x 44 x 30	44.00	30.00	32.00	28.00
44 x 44 x 28	44.00	28.00	32.00	27.50
44 x 44 x 26	44.00	26.00	32.00	27.50
44 x 44 x 24	44.00	24.00	32.00	27.50
44 x 44 x 22	44.00	22.00	32.00	27.00
44 x 44 x 20	44.00	20.00	32.00	27.00
46 x 46 x 44	46.00	44.00	33.50	31.50
46 x 46 x 42	46.00	42.00	33.50	31.00
46 x 46 x 40	46.00	40.00	33.50	30.50
46 x 46 x 38	46.00	38.00	33.50	30.00
46 x 46 x 36	46.00	36.00	33.50	30.00
46 x 46 x 34	46.00	34.00	33.50	29.50
46 x 46 x 32	46.00	32.00	33.50	29.50
46 x 46 x 30	46.00	30.00	33.50	29.00
46 x 46 x 28	46.00	28.00	33.50	29.00
46 x 46 x 26	46.00	26.00	33.50	29.00
46 x 46 x 24	46.00	24.00	33.50	28.50
46 x 46 x 22	46.00	22.00	33.50	28.50
48 x 48 x 46	48.00	46.00	35.00	33.00
48 x 48 x 44	48.00	44.00	35.00	33.00
48 x 48 x 42	48.00	42.00	35.00	32.00
48 x 48 x 40	48.00	40.00	35.00	32.00
48 x 48 x 38	48.00	38.00	35.00	32.00
48 x 48x 36	48.00	36.00	35.00	31.00
48 x 48 x 34	48.00	34.00	35.00	31.00
48 x 48 x 32	48.00	32.00	35.00	31.00
48 x 48 x 30	48.00	30.00	35.00	30.00
48 x 48 x 28	48.00	28.00	35.00	30.00
48 x 48 x 26	48.00	26.00	35.00	30.00
48 x 48 x 24	48.00	24.00	35.00	29.00
48 x 48 x 22	48.00	22.00	35.00	29.00



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)



Lap Joint Stub Ends

*All dimensions are in inches.

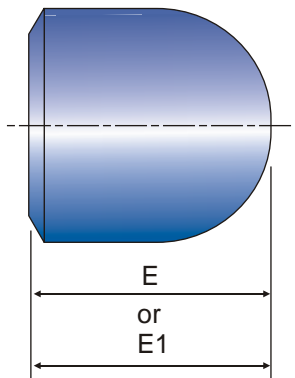
NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL - D.	LONG PATTERN LENGTH - F.	SHORT PATTERN LENGTH - F.	RADIUS OF FILLET-R.	DIAMETER OF LAP-G.	OUTSIDE DIAMETER OF BARREL	
						MAX.	MIN.
1/2	0.840	3.00	2.00	0.125	1.375	0.896	0.809
3/4	1.050	3.00	2.00	0.125	1.6875	1.106	1.019
1	1.315	4.00	2.00	0.125	2.00	1.376	1.284
1 1/4	1.660	4.00	2.00	0.1875	2.50	1.716	1.629
1 1/2	1.900	4.00	2.00	0.25	2.875	1.966	1.869
2	2.375	6.00	2.50	0.3125	3.625	2.456	2.344
2 1/2	2.875	6.00	2.50	0.3125	4.125	2.966	2.844
3	3.50	6.00	2.50	0.375	5.00	3.596	3.469
3 1/2	4.00	6.00	3.00	0.375	5.50	4.096	3.969
4	4.50	6.00	3.00	0.4375	6.1875	4.593	4.469
5	5.563	8.00	3.00	0.4375	7.3125	5.683	5.532
6	6.625	8.00	3.50	0.50	8.50	6.743	6.594
8	8.625	8.00	4.00	0.50	10.625	8.743	8.594
10	10.75	10.00	5.00	0.50	12.75	10.913	10.719
12	12.75	10.00	6.00	0.50	15.00	12.913	12.719
14	14.00	12.00	6.00	0.50	16.25	14.170	13.969
16	16.00	12.00	6.00	0.50	18.50	16.180	15.969
18	18.00	12.00	6.00	0.50	21.00	18.190	17.969
20	20.00	12.00	6.00	0.50	23.00	20.240	19.969
22	22.00	12.00	6.00	0.50	25.25	22.240	21.969
24	24.00	12.00	6.00	0.50	27.25	24.240	23.969



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)

*All dimensions are in inches.



Caps

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.	LENGTH E.	LIMITING WALL THICKNESS FOR LENGTH E.	LENGTH E1.
1/2	0.84	1.00	0.147	1.00
3/4	1.05	1.00	0.154	1.00
1	1.315	1.50	0.179	1.50
1 1/4	1.66	1.50	0.191	1.50
1 1/2	1.90	1.50	0.20	1.50
2	2.375	1.50	0.218	1.75
2 1/2	2.875	1.50	0.276	2.00
3	3.50	2.00	0.30	2.50
3 1/2	4.00	2.50	0.318	3.00
4	4.50	2.50	0.337	3.00
5	5.563	3.00	0.375	3.50
6	6.625	3.50	0.432	4.00
8	8.625	4.00	0.50	5.00
10	10.75	5.00	0.50	6.00
12	12.75	6.00	0.50	7.00
14	14.00	6.50	0.50	7.50
16	16.00	7.00	0.50	8.00
18	18.00	8.00	0.50	9.00
20	20.00	9.00	0.50	10.00
22	22.00	10.00	0.50	10.00
24	24.00	10.50	0.50	12.00
26	26.00	10.50	-	-
28	28.00	10.50	-	-
30	30.00	10.50	-	-
32	32.00	10.50	-	-
34	34.00	10.50	-	-
36	36.00	10.50	-	-
38	38.00	12.00	-	-
40	40.00	12.00	-	-
42	42.00	12.00	-	-
44	44.00	13.50	-	-
46	46.00	13.50	-	-
48	48.00	13.50	-	-

General Notes:

The shape of these Caps shall be ellipsoidal and shall conform to the shape requirements as given in the ASME Boiler & Pressure Vessel Code.

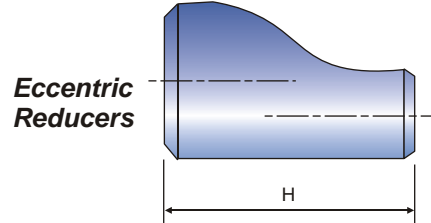
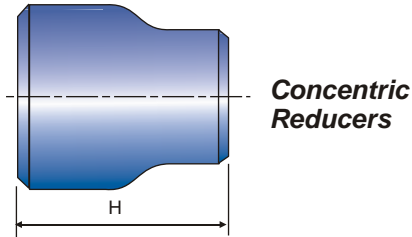
Notes:

- a. Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness for Length E"
- b. Length E1 applies for thickness greater than that given in column "Limiting Wall Thickness" for NPS 24 and smaller. For NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser.



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)



*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		END-TO-END H.
	LARGE END	SMALL END	
3/4 x 3/8	1.05	0.675	1.50
3/4 x 1/2	1.05	0.840	1.50
1 x 3/4	1.32	1.05	2.00
1 x 1/2	1.32	0.84	2.00
1 1/4 x 1	1.66	1.315	2.00
1 1/4 x 3/4	1.66	1.05	2.00
1 1/4 x 1/2	1.66	0.840	2.00
1 1/2 x 1 1/4	1.90	1.660	2.50
1 1/2 x 1	1.90	1.315	2.50
1 1/2 x 3/4	1.90	1.05	2.50
1 1/2 x 1/2	1.90	0.84	2.50
2 x 1 1/2	2.38	1.90	3.00
2 x 1 1/4	2.38	1.66	3.00
2 x 1	2.38	1.315	3.00
2 x 3/4	2.38	1.050	3.00
2 1/2 x 2	2.88	2.375	3.50
2 1/2 x 1 1/2	2.88	1.900	3.50
2 1/2 x 1 1/4	2.88	1.660	3.50
2 1/2 x 1	2.88	1.315	3.50
3 x 2 1/2	3.50	2.875	3.50
3 x 2	3.50	2.375	3.50
3 x 1 1/2	3.50	1.90	3.50
3 x 1 1/4	3.50	1.660	3.50
3 1/2 x 3	4.00	3.50	4.00
3 1/2 x 2 1/2	4.00	2.875	4.00
3 1/2 x 2	4.00	2.375	4.00
3 1/2 x 1 1/2	4.00	1.90	4.00
3 1/2 x 1 1/4	4.00	1.66	4.00
4 x 3 1/2	4.50	4.00	4.00
4 x 3	4.50	3.50	4.00
4 x 2 1/2	4.50	2.875	4.00
4 x 2	4.50	2.375	4.00
4 x 1 1/2	4.50	1.90	4.00
5 x 4	5.56	4.50	5.00
5 x 3 1/2	5.56	4.00	5.00
5 x 3	5.56	3.50	5.00
5 x 2 1/2	5.56	2.875	5.00
5 x 2	5.56	2.375	5.00

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		END-TO-END H.
	LARGE END	SMALL END	
6 x 5	6.625	5.563	5.50
6 x 4	6.625	4.50	5.50
6 x 3 1/2	6.625	4.00	5.50
6 x 3	6.625	3.50	5.50
6 x 2 1/2	6.625	2.875	5.50
8 x 6	8.625	6.625	6.00
8 x 5	8.625	5.563	6.00
8 x 4	8.625	4.50	6.00
8 x 3 1/2	8.625	4.00	6.00
10 x 8	10.75	8.625	7.00
10 x 6	10.75	6.625	7.00
10 x 5	10.75	5.563	7.00
10 x 4	10.75	4.50	7.00
12 x 10	12.75	10.75	8.00
12 x 8	12.75	8.625	8.00
12 x 6	12.75	6.625	8.00
12 x 5	12.75	5.563	8.00
14 x 12	14.00	12.75	13.00
14 x 10	14.00	10.75	13.00
14 x 8	14.00	8.625	13.00
14 x 6	14.00	6.625	13.00
16 x 14	16.00	14.00	14.00
16 x 12	16.00	12.75	14.00
16 x 10	16.00	10.75	14.00
16 x 8	16.00	8.625	14.00
18 x 16	18.00	16.00	15.00
18 x 14	18.00	14.00	15.00
18 x 12	18.00	12.75	15.00
18 x 10	18.00	10.75	15.00
20 x 18	20.00	18.00	20.00
20 x 16	20.00	16.00	20.00
20 x 14	20.00	14.00	20.00
20 x 12	20.00	12.75	20.00
22 x 20	22.00	20.00	20.00
22 x 18	22.00	18.00	20.00
22 x 16	22.00	16.00	20.00
22 x 14	22.00	14.00	20.00



BUTT WELDED FITTINGS

1 BUTT WELDED FITTINGS (ASME B 16.9)

Concentric & Eccentric Reducers

*All dimensions are in inches.

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		END-TO -END H.
	LARGE END	SMALL END	
24x 22	24.00	22.00	20.00
24 x 20	24.00	20.00	20.00
24 x 18	24.00	18.00	20.00
24 x 16	24.00	16.00	20.00
26 x 24	26.00	24.00	24.00
26 x 22	26.00	22.00	24.00
26 x 20	26.00	20.00	24.00
26 x 18	26.00	18.00	24.00
28 x 26	28.00	26.00	24.00
28 x 24	28.00	24.00	24.00
28 x 20	28.00	20.00	24.00
28 x 18	28.00	18.00	24.00
30 x 28	30.00	28.00	24.00
30 x 26	30.00	26.00	24.00
30 x 24	30.00	24.00	24.00
30 x 20	30.00	20.00	24.00
32 x 30	32.00	30.00	24.00
32 x 28	32.00	28.00	24.00
32 x 26	32.00	26.00	24.00
32 x 24	32.00	24.00	24.00
34 x 32	34.00	32.00	24.00
34 x 30	34.00	30.00	24.00
34 x 26	34.00	26.00	24.00
34 x 24	34.00	24.00	24.00
36 x 34	36.00	34.00	24.00
36 x 32	36.00	32.00	24.00
36 x 30	36.00	30.00	24.00
36 x 26	36.00	26.00	24.00
36 x 24	36.00	24.00	24.00

NOMINAL PIPE SIZE (NPS)	OUTSIDE DIAMETER AT BEVEL D.		END-TO -END H.
	LARGE END	SMALL END	
38 x 36	38.00	36.00	24.00
38 x 34	38.00	34.00	24.00
38 x 32	38.00	32.00	24.00
38 x 30	38.00	30.00	24.00
38 x 28	38.00	28.00	24.00
38 x 26	38.00	26.00	24.00
40 x 38	40.00	38.00	24.00
40 x 36	40.00	36.00	24.00
40 x 34	40.00	34.00	24.00
40 x 32	40.00	32.00	24.00
40 x 30	40.00	30.00	24.00
42 x 40	42.00	40.00	24.00
42 x 38	42.00	38.00	24.00
42 x 36	42.00	36.00	24.00
42 x 34	42.00	34.00	24.00
42 x 32	42.00	32.00	24.00
42 x 30	42.00	30.00	24.00
44 x 42	44.00	42.00	24.00
44 x 40	44.00	40.00	24.00
44 x 38	44.00	38.00	24.00
44 x 36	44.00	36.00	24.00
46 x 44	46.00	44.00	28.00
46 x 42	46.00	42.00	28.00
46 x 40	46.00	40.00	28.00
46 x 38	46.00	38.00	28.00
48 x 46	48.00	46.00	28.00
48 x 44	48.00	44.00	28.00
48 x 42	48.00	42.00	28.00
48 x 40	48.00	40.00	28.00