



ASME B16.28

WROUGHT STEEL BUTTWELDING SHORT RADIUS ELBOWS AND RETURNS

Dimension and Tolerances

Jinie Technology (Jiangsu) Co., Ltd.

www.jnalloy.com
www.jnalloys.com
Info@jnalloy.com
+86 19339900211

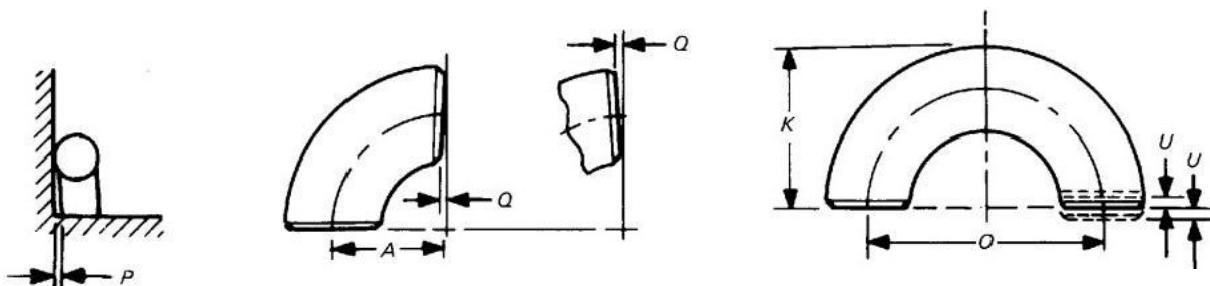


TABLE 1 TOLERANCES

Nominal Pipe Size	All Fittings					90 deg Elbows	180 deg Returns		
	Outside Diameter at Bevel [Notes(1), (2)]	Inside Diameter at End [Notes(1),(3), (4)]	Wall Thickness [Note (3)]	Angularity		Center-to-End Dimension A	Center-to- Center Dimension O	Back-to-Face Dimension K	Alignments of Ends U
				Off Angle Q	Off Plane P				
1/2 to 2 1/2	0.03	0.03	Not less than 87.5% of nominal thickness marked on fitting	0.03	0.06	0.06	0.25	0.25	0.03
3 to 3 1/2	0.06	0.06		0.03	0.06	0.06	0.25	0.25	0.03
4	0.06	0.06		0.03	0.06	0.06	0.25	0.25	0.03
5 to 8	0.09	0.06		0.06	0.12	0.06	0.25	0.25	0.03
10 to 12	-0.06	0.12		0.09	0.19	0.09	0.38	0.25	0.06
14 to 16	0.16	0.12		0.09	0.25	0.09	0.38	0.25	0.06
18	-0.12	0.12		0.12	0.38	0.09	0.38	0.25	0.06
20 to 24	0.16	0.19		0.12	0.38	0.09	0.38	0.25	0.06
	-0.12								
	0.16								
	-0.12								
	0.25								
	-0.19								

GENERAL NOTE: Dimensions are in inches. Tolerances are equal plus and minus except as noted.

NOTES:

- (1) Out-of-round is the sum of absolute values of plus and minus tolerance.
- (2) This tolerance may be exceeded in localized areas of formed fittings where increased wall thickness is required to meet design requirements of para. 2.1.
- (3) The inside diameter and the nominal wall thicknesses at the ends are to be specified by the purchaser. Wall thickness tolerance applies throughout the fitting.
- (4) Unless otherwise specified by the purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.

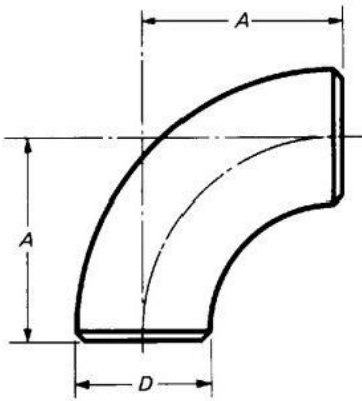


TABLE 2 DIMENSIONS OF SHORT RADIUS ELBOWS

Nominal pipe size	Outside diameter at bevel D	Center-to-end A
1	1.32	1.00
1	1.66	1.25
1 1/4	1.90	1.50
2	2.38	2.00
2 1/2	2.88	2.50
3	3.50	3.00
3 1/2	4.00	3.50
4	4.50	4.00
5	5.56	5.00
6	6.62	6.00
8	8.62	8.00
10	10.75	10.00
12	12.75	12.00
14	14.00	14.00
16	16.00	16.00
18	18.00	18.00
20	20.00	20.00
22	22.00	22.00
24	24.00	24.00

GENERAL NOTES: Dimensions are in inches.

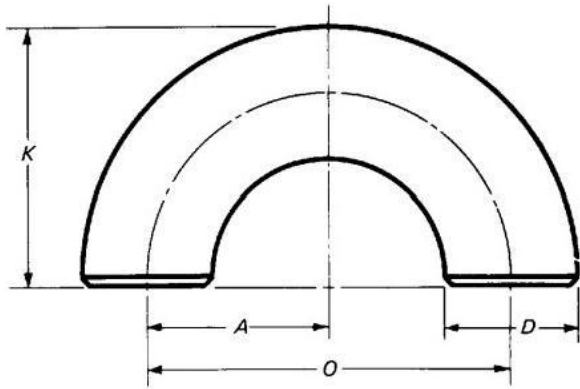


TABLE 3 DIMENSIONS OF SHORT RADIUS 180 deg RETURNS

Nominal pipe size	Outside diameter at bevel D	Center-to-center O	Back-to-face K
1	1.32	2.00	1.62
1 1/4	1.66	2.50	2.06
1 1/2	1.90	3.00	2.44
2	2.38	4.00	3.19
2 1/2	2.88	5.00	3.94
3	3.50	6.00	4.75
3 1/4	4.00	7.00	5.50
4	4.50	8.00	6.25
5	5.56	10.00	7.75
6	6.62	12.00	9.31
8	8.62	16.00	12.31
10	10.75	20.00	15.38
12	12.75	24.00	18.38
14	14.00	28.00	21.00
16	16.00	32.00	24.00
18	18.00	36.00	27.00
20	20.00	40.00	30.00
22	22.00	44.00	33.00
24	24.00	48.00	36.00

GENERAL NOTES:

- (a) Dimensions are in inches.
- (b) Dimension A is equal to one-half of dimension O.

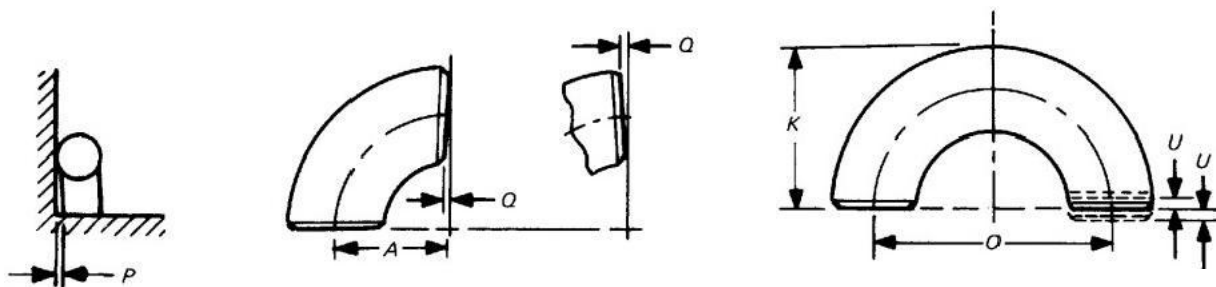


TABLE A1 TOLERANCES

Nominal Pipe Size	All Fittings					90 deg Elbows	180 deg Returns		
	Outside Diameter at Bevel [Notes(1), (2)]	Inside Diameter at End [Notes(1),(3),(4)]	Wall Thickness [Note (3)]	Angularity		Center-to- End Dimension A	Center-to- Center Dimension O	Back-to- Face Dimension K	Alignments of Ends U
				Off Angle Q	Off Plane P				
1/2 to 2 1/2	1	0.8	Not less than 87.5% of nominal thickness marked on fitting	1	2	2	7	7	1
3 to 3 1/2	1	1.6		1	2	2	7	7	1
4	2								
	-1	1.6		1	2	2	7	7	1
5 to 6 8	3								
	-1	1.6		2	4	2	7	7	1
10 to 12	2	1.6		2	4	2	7	7	1
	4				5	3			
14 to 18	-3	3.2		3			10	7	2
	4				10	3			
20 to 24	-3	3.2		4			10	7	2
	6				10	3			
	-5	4.8		4			10	7	2

GENERAL NOTE: Dimensions are in millimeters. Tolerances are equal plus and minus except as noted.

NOTES:

(1) Out-of-round is the sum of absolute values of plus and minus tolerance.

(2) This tolerance may be exceeded in localized areas of formed fittings where increased wall thickness is required to meet design requirements of para. 2.1.

(3) The inside diameter and the nominal wall thicknesses at the ends are to be specified by the purchaser. Wall thickness tolerance applies throughout the fitting.

(4) Unless otherwise specified by the purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.

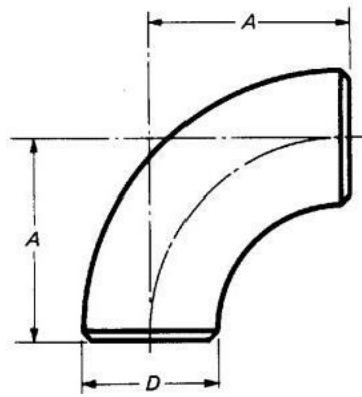


TABLE A2 DIMENSIONS OF SHORT RADIUS ELBOWS

Nominal Pipe Size	Outside Diameter at Bevel D			Center-to-End A		
				90 deg Elbows		
	Min.	Nom.	Max.	Min.	Nom.	Max.
1	32	33	34	23	25	27
1 1/4	41	42	43	30	32	34
1 1/2	47	48	49	36	38	40
2	59	60	61	49	51	53
2 1/2	72	73	74	62	64	66
3	88	89	90	74	76	78
3 1/2	101	102	103	87	89	91
4	113	114	116	100	102	104
5	140	141	144	125	127	129
6	167	168	171	150	152	154
8	217	219	221	201	203	205
10	270	273	277	252	254	256
12	321	324	328	302	305	308
14	353	356	360	353	356	359
16	403	406	410	403	406	409
18	454	457	461	454	457	460
20	503	508	514	505	508	511
22	554	559	565	556	559	562
24	605	610	616	607	610	613

GENERAL NOTE: Dimensions are in millimeters.