

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches

BEND RADIUS

in pipe diameters

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 4

BEND RADIUS, CL 6

BEND RADIUS, outside arc 8

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	6 5/16	6 3/16	6 2/16	6 2/16	6	5 14/16	5 14/16	5 13/16	5 11/16	5 11/16	5 10/16
OUTSIDE ARC, arc length	12 10/16	12 6/16	12 5/16	12 2/16	12	11 14/16	11 11/16	11 10/16	11 6/16	11 5/16	11 3/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	5 10/16	5 8/16	5 6/16	5 6/16	5 5/16	5 3/16	5 3/16	5 2/16	5	5	4 14/16
OUTSIDE ARC, arc length	11 3/16	11	10 14/16	10 13/16	10 10/16	10 8/16	10 5/16	10 3/16	10 2/16	9 14/16	9 13/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	4 14/16	4 13/16	4 11/16	4 11/16	4 10/16	4 8/16	4 8/16	4 6/16	4 5/16	4 5/16	4 3/16
OUTSIDE ARC, arc length	9 13/16	9 10/16	9 8/16	9 6/16	9 3/16	9 2/16	8 14/16	8 13/16	8 11/16	8 8/16	8 6/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	4 3/16	4 2/16	4	4	3 14/16	3 13/16	3 13/16	3 11/16	3 10/16	3 10/16	3 8/16
OUTSIDE ARC, arc length	8 6/16	8 3/16	8 2/16	8	7 13/16	7 11/16	7 8/16	7 6/16	7 5/16	7 2/16	7
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	3 8/16	3 6/16	3 6/16	3 5/16	3 3/16	3 2/16	3 2/16	3	2 14/16	2 14/16	2 13/16
OUTSIDE ARC, arc length	7	6 13/16	6 11/16	6 10/16	6 6/16	6 5/16	6 2/16	6	5 14/16	5 11/16	5 10/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	2 13/16	2 11/16	2 11/16	2 10/16	2 8/16	2 6/16	2 6/16	2 5/16	2 3/16	2 3/16	2 2/16
OUTSIDE ARC, arc length	5 10/16	5 6/16	5 5/16	5 3/16	5	4 14/16	4 11/16	4 10/16	4 8/16	4 5/16	4 3/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	2 2/16	2	2	1 14/16	1 13/16	1 11/16	1 11/16	1 10/16	1 8/16	1 8/16	1 6/16
OUTSIDE ARC, arc length	4 3/16	4	3 14/16	3 13/16	3 10/16	3 8/16	3 6/16	3 3/16	3 2/16	2 14/16	2 13/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	1 6/16	1 5/16	1 5/16	1 3/16	1 2/16	1	1	14/16	13/16	13/16	11/16
OUTSIDE ARC, arc length	2 13/16	2 11/16	2 8/16	2 6/16	2 3/16	2 2/16	2	1 13/16	1 11/16	1 8/16	1 6/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	11/16	10/16	10/16	8/16	6/16	5/16	5/16	3/16	2/16	2/16	0
OUTSIDE ARC, arc length	1 6/16	1 5/16	1 2/16	1	13/16	11/16	10/16	6/16	5/16	2/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches

BEND RADIUS

in pipe diameters

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 6

BEND RADIUS, CL 9

BEND RADIUS, outside arc 12

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	9 6/16	9 5/16	9 3/16	9 2/16	9	8 14/16	8 13/16	8 11/16	8 10/16	8 8/16	8 6/16
OUTSIDE ARC, arc length	18 13/16	18 10/16	18 6/16	18 3/16	18	17 13/16	17 10/16	17 6/16	17 3/16	17	16 13/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	8 6/16	8 5/16	8 3/16	8 2/16	8	7 14/16	7 11/16	7 10/16	7 8/16	7 6/16	7 5/16
OUTSIDE ARC, arc length	16 13/16	16 8/16	16 5/16	16 2/16	15 14/16	15 11/16	15 8/16	15 5/16	15 2/16	14 14/16	14 11/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	7 5/16	7 3/16	7 2/16	7	6 14/16	6 13/16	6 11/16	6 10/16	6 8/16	6 6/16	6 5/16
OUTSIDE ARC, arc length	14 11/16	14 8/16	14 3/16	14	13 13/16	13 10/16	13 6/16	13 3/16	13	12 13/16	12 10/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	6 5/16	6 3/16	6 2/16	6	5 14/16	5 13/16	5 11/16	5 10/16	5 6/16	5 5/16	5 3/16
OUTSIDE ARC, arc length	12 10/16	12 6/16	12 2/16	11 14/16	11 11/16	11 8/16	11 5/16	11 2/16	10 14/16	10 11/16	10 8/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	5 3/16	5 2/16	5	4 14/16	4 13/16	4 11/16	4 10/16	4 8/16	4 6/16	4 5/16	4 3/16
OUTSIDE ARC, arc length	10 8/16	10 5/16	10 2/16	9 13/16	9 10/16	9 6/16	9 3/16	9	8 13/16	8 10/16	8 6/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	4 3/16	4 2/16	4	3 14/16	3 13/16	3 11/16	3 10/16	3 8/16	3 6/16	3 3/16	3 2/16
OUTSIDE ARC, arc length	8 6/16	8 3/16	8	7 11/16	7 8/16	7 5/16	7 2/16	6 14/16	6 11/16	6 8/16	6 5/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	3 2/16	3	2 14/16	2 13/16	2 11/16	2 10/16	2 8/16	2 6/16	2 5/16	2 3/16	2 2/16
OUTSIDE ARC, arc length	6 5/16	6 2/16	5 14/16	5 11/16	5 6/16	5 3/16	5	4 13/16	4 10/16	4 6/16	4 3/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	2 2/16	2	1 14/16	1 13/16	1 11/16	1 10/16	1 8/16	1 6/16	1 5/16	1 3/16	1
OUTSIDE ARC, arc length	4 3/16	4	3 13/16	3 10/16	3 6/16	3 2/16	2 14/16	2 11/16	2 8/16	2 5/16	2 2/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	1	14/16	13/16	11/16	10/16	8/16	6/16	5/16	3/16	2/16	0
OUTSIDE ARC, arc length	2 2/16	1 14/16	1 11/16	1 8/16	1 5/16	1	13/16	10/16	6/16	3/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches

BEND RADIUS

in pipe diameters

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 8

BEND RADIUS, CL 12

BEND RADIUS, outside arc 16

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	12 10/16	12 6/16	12 5/16	12 2/16	12	11 14/16	11 11/16	11 10/16	11 6/16	11 5/16	11 3/16
OUTSIDE ARC, arc length	25 2/16	24 14/16	24 10/16	24 5/16	24	23 11/16	23 8/16	23 3/16	22 14/16	22 10/16	22 5/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	11 3/16	11	10 14/16	10 13/16	10 10/16	10 8/16	10 5/16	10 3/16	10 2/16	9 14/16	9 13/16
OUTSIDE ARC, arc length	22 5/16	22 2/16	21 13/16	21 8/16	21 3/16	20 14/16	20 11/16	20 6/16	20 2/16	19 13/16	19 8/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	9 13/16	9 10/16	9 8/16	9 6/16	9 3/16	9 2/16	8 14/16	8 13/16	8 11/16	8 8/16	8 6/16
OUTSIDE ARC, arc length	19 8/16	19 5/16	19	18 11/16	18 6/16	18 3/16	17 14/16	17 10/16	17 5/16	17	16 13/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	8 6/16	8 3/16	8 2/16	8	7 13/16	7 11/16	7 8/16	7 6/16	7 5/16	7 2/16	7
OUTSIDE ARC, arc length	16 13/16	16 8/16	16 3/16	15 14/16	15 10/16	15 6/16	15 2/16	14 13/16	14 8/16	14 3/16	14
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	7	6 13/16	6 11/16	6 10/16	6 6/16	6 5/16	6 2/16	6	5 14/16	5 11/16	5 10/16
OUTSIDE ARC, arc length	14	13 11/16	13 6/16	13 2/16	12 13/16	12 10/16	12 5/16	12	11 11/16	11 6/16	11 3/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	5 10/16	5 6/16	5 5/16	5 3/16	5	4 14/16	4 11/16	4 10/16	4 8/16	4 5/16	4 3/16
OUTSIDE ARC, arc length	11 3/16	10 14/16	10 10/16	10 5/16	10 2/16	9 13/16	9 8/16	9 3/16	8 14/16	8 11/16	8 6/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	4 3/16	4	3 14/16	3 13/16	3 10/16	3 8/16	3 6/16	3 3/16	3 2/16	2 14/16	2 13/16
OUTSIDE ARC, arc length	8 6/16	8 2/16	7 13/16	7 8/16	7 5/16	7	6 11/16	6 6/16	6 2/16	5 14/16	5 10/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	2 13/16	2 11/16	2 8/16	2 6/16	2 3/16	2 2/16	2	1 13/16	1 11/16	1 8/16	1 6/16
OUTSIDE ARC, arc length	5 10/16	5 5/16	5	4 11/16	4 8/16	4 3/16	3 14/16	3 10/16	3 6/16	3 2/16	2 13/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	1 6/16	1 5/16	1 2/16	1	13/16	11/16	10/16	6/16	5/16	2/16	0
OUTSIDE ARC, arc length	2 13/16	2 8/16	2 3/16	2	1 11/16	1 6/16	1 2/16	13/16	10/16	5/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 10

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 10

BEND RADIUS, CL 15

BEND RADIUS, outside arc 20

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	15 11/16	15 8/16	15 6/16	15 3/16	15	14 13/16	14 11/16	14 8/16	14 5/16	14 2/16	14
OUTSIDE ARC, arc length	31 6/16	31 2/16	30 11/16	30 6/16	30	29 11/16	29 5/16	29	28 10/16	28 5/16	27 14/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	14	13 13/16	13 10/16	13 6/16	13 5/16	13 2/16	12 14/16	12 11/16	12 10/16	12 6/16	12 3/16
OUTSIDE ARC, arc length	27 14/16	27 10/16	27 3/16	26 14/16	26 8/16	26 3/16	25 13/16	25 8/16	25 2/16	24 13/16	24 6/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	12 3/16	12	11 14/16	11 11/16	11 8/16	11 5/16	11 3/16	11	10 13/16	10 10/16	10 8/16
OUTSIDE ARC, arc length	24 6/16	24 2/16	23 11/16	23 6/16	23	22 11/16	22 5/16	22	21 10/16	21 5/16	20 14/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	10 8/16	10 5/16	10 2/16	9 14/16	9 13/16	9 10/16	9 6/16	9 5/16	9 2/16	8 14/16	8 11/16
OUTSIDE ARC, arc length	20 14/16	20 10/16	20 3/16	19 14/16	19 8/16	19 3/16	18 13/16	18 8/16	18 3/16	17 13/16	17 8/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	8 11/16	8 10/16	8 6/16	8 3/16	8	7 14/16	7 11/16	7 8/16	7 5/16	7 3/16	7
OUTSIDE ARC, arc length	17 8/16	17 2/16	16 13/16	16 6/16	16 2/16	15 11/16	15 6/16	15	14 11/16	14 5/16	14
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	7	6 13/16	6 10/16	6 8/16	6 5/16	6 2/16	5 14/16	5 13/16	5 10/16	5 6/16	5 3/16
OUTSIDE ARC, arc length	14	13 10/16	13 5/16	12 14/16	12 10/16	12 3/16	11 14/16	11 8/16	11 3/16	10 13/16	10 8/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	5 3/16	5 2/16	4 14/16	4 11/16	4 8/16	4 6/16	4 3/16	4	3 13/16	3 11/16	3 8/16
OUTSIDE ARC, arc length	10 8/16	10 2/16	9 13/16	9 6/16	9 2/16	8 11/16	8 6/16	8	7 11/16	7 5/16	7
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	3 8/16	3 5/16	3 2/16	3	2 13/16	2 10/16	2 6/16	2 5/16	2 2/16	1 14/16	1 11/16
OUTSIDE ARC, arc length	7	6 10/16	6 5/16	5 14/16	5 10/16	5 3/16	4 14/16	4 8/16	4 3/16	3 13/16	3 8/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	1 11/16	1 10/16	1 6/16	1 3/16	1	14/16	11/16	8/16	5/16	3/16	0
OUTSIDE ARC, arc length	3 8/16	3 2/16	2 13/16	2 6/16	2 2/16	1 11/16	1 6/16	1	11/16	5/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 12

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 12
 BEND RADIUS, CL 18
 BEND RADIUS, outside arc 24

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	18 13/16	18 10/16	18 6/16	18 3/16	18	17 13/16	17 10/16	17 6/16	17 3/16	17	16 13/16
OUTSIDE ARC, arc length	37 11/16	37 5/16	36 14/16	36 6/16	36	35 10/16	35 3/16	34 13/16	34 5/16	33 14/16	33 8/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	16 13/16	16 8/16	16 5/16	16 2/16	15 14/16	15 11/16	15 8/16	15 5/16	15 2/16	14 14/16	14 11/16
OUTSIDE ARC, arc length	33 8/16	33 2/16	32 11/16	32 5/16	31 13/16	31 6/16	31	30 10/16	30 3/16	29 11/16	29 5/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	14 11/16	14 8/16	14 3/16	14	13 13/16	13 10/16	13 6/16	13 3/16	13	12 13/16	12 10/16
OUTSIDE ARC, arc length	29 5/16	28 14/16	28 8/16	28 2/16	27 10/16	27 3/16	26 13/16	26 6/16	26	25 10/16	25 2/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	12 10/16	12 6/16	12 2/16	11 14/16	11 11/16	11 8/16	11 5/16	11 2/16	10 14/16	10 11/16	10 8/16
OUTSIDE ARC, arc length	25 2/16	24 11/16	24 5/16	23 14/16	23 8/16	23	22 10/16	22 3/16	21 13/16	21 6/16	20 14/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	10 8/16	10 5/16	10 2/16	9 13/16	9 10/16	9 6/16	9 3/16	9	8 13/16	8 10/16	8 6/16
OUTSIDE ARC, arc length	20 14/16	20 8/16	20 2/16	19 11/16	19 5/16	18 13/16	18 6/16	18	17 10/16	17 3/16	16 13/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	8 6/16	8 3/16	8	7 11/16	7 8/16	7 5/16	7 2/16	6 14/16	6 11/16	6 8/16	6 5/16
OUTSIDE ARC, arc length	16 13/16	16 5/16	15 14/16	15 8/16	15 2/16	14 11/16	14 3/16	13 13/16	13 6/16	13	12 10/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	6 5/16	6 2/16	5 14/16	5 11/16	5 6/16	5 3/16	5	4 13/16	4 10/16	4 6/16	4 3/16
OUTSIDE ARC, arc length	12 10/16	12 2/16	11 11/16	11 5/16	10 14/16	10 8/16	10 2/16	9 10/16	9 3/16	8 13/16	8 6/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	4 3/16	4	3 13/16	3 10/16	3 6/16	3 2/16	2 14/16	2 11/16	2 8/16	2 5/16	2 2/16
OUTSIDE ARC, arc length	8 6/16	8	7 8/16	7 2/16	6 11/16	6 5/16	5 14/16	5 6/16	5	4 10/16	4 3/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	2 2/16	1 14/16	1 11/16	1 8/16	1 5/16	1	13/16	10/16	6/16	3/16	0
OUTSIDE ARC, arc length	4 3/16	3 13/16	3 6/16	2 14/16	2 8/16	2 2/16	1 11/16	1 5/16	13/16	6/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 14

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 14

BEND RADIUS, CL 21

BEND RADIUS, outside arc 28

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	1
INSIDE ARC, arc length	22	21 11/16	21 8/16	21 5/16	21	20 13/16	20 8/16	20 5/16	20	19 13/16	3/16
OUTSIDE ARC, arc length	44	43 8/16	43	42 8/16	42	41 8/16	41 2/16	40 10/16	40 2/16	39 10/16	8/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	19 8/16	19 5/16	19 2/16	18 13/16	18 10/16	18 5/16	18 2/16	17 13/16	17 10/16	17 5/16	17 2/16
OUTSIDE ARC, arc length	39 2/16	38 10/16	38 2/16	37 10/16	37 2/16	36 11/16	36 3/16	35 11/16	35 3/16	34 11/16	34 3/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	17 2/16	16 14/16	16 10/16	16 6/16	16 2/16	15 14/16	15 10/16	15 6/16	15 2/16	14 14/16	14 11/16
OUTSIDE ARC, arc length	34 3/16	33 11/16	33 3/16	32 11/16	32 5/16	31 13/16	31 5/16	30 13/16	30 5/16	29 13/16	29 5/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	14 11/16	14 6/16	14 3/16	13 14/16	13 11/16	13 6/16	13 3/16	13	12 11/16	12 8/16	12 3/16
OUTSIDE ARC, arc length	29 5/16	28 13/16	28 5/16	27 14/16	27 6/16	26 14/16	26 6/16	25 14/16	25 6/16	24 14/16	24 6/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	12 3/16	12	11 11/16	11 8/16	11 3/16	11	10 13/16	10 8/16	10 5/16	10	9 13/16
OUTSIDE ARC, arc length	24 6/16	23 14/16	23 8/16	23	22 8/16	22	21 8/16	21	20 8/16	20	19 8/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	9 13/16	9 8/16	9 5/16	9	8 13/16	8 10/16	8 5/16	8 2/16	7 13/16	7 10/16	7 5/16
OUTSIDE ARC, arc length	19 8/16	19 2/16	18 10/16	18 2/16	17 10/16	17 2/16	16 10/16	16 2/16	15 10/16	15 2/16	14 11/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	7 5/16	7 2/16	6 13/16	6 10/16	6 6/16	6 2/16	5 14/16	5 10/16	5 6/16	5 2/16	4 14/16
OUTSIDE ARC, arc length	14 11/16	14 3/16	13 11/16	13 3/16	12 11/16	12 3/16	11 11/16	11 3/16	10 13/16	10 5/16	9 13/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	4 14/16	4 10/16	4 6/16	4 3/16	3 14/16	3 11/16	3 6/16	3 3/16	2 14/16	2 11/16	2 6/16
OUTSIDE ARC, arc length	9 13/16	9 5/16	8 13/16	8 5/16	7 13/16	7 5/16	6 13/16	6 6/16	5 14/16	5 6/16	4 14/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	2 6/16	2 3/16	2	1 11/16	1 8/16	1 3/16	1	11/16	8/16	3/16	0
OUTSIDE ARC, arc length	4 14/16	4 6/16	3 14/16	3 6/16	2 14/16	2 6/16	2	1 8/16	1	8/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 16

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 16

BEND RADIUS, CL 24

BEND RADIUS, outside arc 32

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	25 2/16	24 14/16	24 10/16	24 5/16	24	23 11/16	23 8/16	23 3/16	22 14/16	22 10/16	22 5/16
OUTSIDE ARC, arc length	50 5/16	49 11/16	49 2/16	48 10/16	48	47 8/16	46 14/16	46 6/16	45 13/16	45 3/16	44 11/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	22 5/16	22 2/16	21 13/16	21 8/16	21 3/16	20 14/16	20 11/16	20 6/16	20 2/16	19 13/16	19 8/16
OUTSIDE ARC, arc length	44 11/16	44 2/16	43 10/16	43	42 6/16	41 14/16	41 5/16	40 13/16	40 3/16	39 11/16	39 2/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	19 8/16	19 5/16	19	18 11/16	18 6/16	18 3/16	17 14/16	17 10/16	17 5/16	17	16 13/16
OUTSIDE ARC, arc length	39 2/16	38 8/16	38	37 6/16	36 14/16	36 5/16	35 11/16	35 3/16	34 10/16	34 2/16	33 8/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	16 13/16	16 8/16	16 3/16	15 14/16	15 10/16	15 6/16	15 2/16	14 13/16	14 8/16	14 3/16	14
OUTSIDE ARC, arc length	33 8/16	33	32 6/16	31 13/16	31 5/16	30 11/16	30 3/16	29 10/16	29	28 8/16	27 14/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	14	13 11/16	13 6/16	13 2/16	12 13/16	12 10/16	12 5/16	12	11 11/16	11 6/16	11 3/16
OUTSIDE ARC, arc length	27 14/16	27 6/16	26 13/16	26 3/16	25 11/16	25 2/16	24 10/16	24	23 8/16	22 14/16	22 5/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	11 3/16	10 14/16	10 10/16	10 5/16	10 2/16	9 13/16	9 8/16	9 3/16	8 14/16	8 11/16	8 6/16
OUTSIDE ARC, arc length	22 5/16	21 13/16	21 3/16	20 11/16	20 2/16	19 8/16	19	18 6/16	17 14/16	17 5/16	16 13/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	8 6/16	8 2/16	7 13/16	7 8/16	7 5/16	7	6 11/16	6 6/16	6 2/16	5 14/16	5 10/16
OUTSIDE ARC, arc length	16 13/16	16 3/16	15 10/16	15 2/16	14 8/16	14	13 6/16	12 13/16	12 5/16	11 11/16	11 3/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	5 10/16	5 5/16	5	4 11/16	4 8/16	4 3/16	3 14/16	3 10/16	3 6/16	3 2/16	2 13/16
OUTSIDE ARC, arc length	11 3/16	10 10/16	10 2/16	9 8/16	8 14/16	8 6/16	7 13/16	7 5/16	6 11/16	6 2/16	5 10/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	2 13/16	2 8/16	2 3/16	2	1 11/16	1 6/16	1 2/16	13/16	10/16	5/16	0
OUTSIDE ARC, arc length	5 10/16	5	4 8/16	3 14/16	3 6/16	2 13/16	2 3/16	1 11/16	1 2/16	10/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 18

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 18
 BEND RADIUS, CL 27
 BEND RADIUS, outside arc 36

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	28 5/16	28	27 10/16	27 5/16	27	26 11/16	26 6/16	26 2/16	25 13/16	25 6/16	25 2/16
OUTSIDE ARC, arc length	56 8/16	55 14/16	55 5/16	54 11/16	54	53 6/16	52 13/16	52 3/16	51 8/16	50 14/16	50 5/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	25 2/16	24 13/16	24 8/16	24 3/16	23 14/16	23 10/16	23 3/16	22 14/16	22 10/16	22 5/16	22
OUTSIDE ARC, arc length	50 5/16	49 10/16	49	48 6/16	47 13/16	47 2/16	46 8/16	45 14/16	45 3/16	44 10/16	44
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	22	21 11/16	21 6/16	21	20 11/16	20 6/16	20 2/16	19 13/16	19 8/16	19 3/16	18 13/16
OUTSIDE ARC, arc length	44	43 6/16	42 11/16	42 2/16	41 8/16	40 13/16	40 3/16	39 10/16	39	38 5/16	37 11/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	18 13/16	18 8/16	18 3/16	17 14/16	17 10/16	17 5/16	17	16 11/16	16 5/16	16	15 11/16
OUTSIDE ARC, arc length	37 11/16	37 2/16	36 6/16	35 13/16	35 3/16	34 10/16	33 14/16	33 5/16	32 11/16	32	31 6/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	15 11/16	15 6/16	15 2/16	14 13/16	14 8/16	14 2/16	13 13/16	13 8/16	13 3/16	12 14/16	12 10/16
OUTSIDE ARC, arc length	31 6/16	30 13/16	30 3/16	29 8/16	28 14/16	28 5/16	27 10/16	27	26 6/16	25 13/16	25 2/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	12 10/16	12 5/16	11 14/16	11 10/16	11 5/16	11	10 11/16	10 6/16	10 2/16	9 11/16	9 6/16
OUTSIDE ARC, arc length	25 2/16	24 8/16	23 14/16	23 3/16	22 10/16	22	21 6/16	20 11/16	20 2/16	19 8/16	18 13/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	9 6/16	9 2/16	8 13/16	8 8/16	8 3/16	7 14/16	7 8/16	7 3/16	6 14/16	6 10/16	6 5/16
OUTSIDE ARC, arc length	18 13/16	18 3/16	17 10/16	17	16 5/16	15 11/16	15 2/16	14 8/16	13 13/16	13 3/16	12 10/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	6 5/16	6	5 11/16	5 5/16	5	4 11/16	4 6/16	4 2/16	3 13/16	3 8/16	3 2/16
OUTSIDE ARC, arc length	12 10/16	11 14/16	11 5/16	10 11/16	10 2/16	9 6/16	8 13/16	8 3/16	7 8/16	6 14/16	6 5/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	3 2/16	2 13/16	2 8/16	2 3/16	1 14/16	1 10/16	1 5/16	14/16	10/16	5/16	0
OUTSIDE ARC, arc length	6 5/16	5 11/16	5	4 6/16	3 13/16	3 2/16	2 8/16	1 14/16	1 5/16	10/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 20

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 20

BEND RADIUS, CL 30

BEND RADIUS, outside arc 40

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	31 6/16	31 2/16	30 11/16	30 6/16	30	29 11/16	29 5/16	29	28 10/16	28 5/16	27 14/16
OUTSIDE ARC, arc length	62 13/16	62 2/16	61 6/16	60 11/16	60	59 5/16	58 10/16	57 14/16	57 3/16	56 8/16	55 14/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	27 14/16	27 10/16	27 3/16	26 14/16	26 8/16	26 3/16	25 13/16	25 8/16	25 2/16	24 13/16	24 6/16
OUTSIDE ARC, arc length	55 14/16	55 3/16	54 8/16	53 13/16	53 2/16	52 6/16	51 11/16	51	50 5/16	49 10/16	48 14/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	24 6/16	24 2/16	23 11/16	23 6/16	23	22 11/16	22 5/16	22	21 10/16	21 5/16	20 14/16
OUTSIDE ARC, arc length	48 14/16	48 3/16	47 8/16	46 13/16	46 2/16	45 6/16	44 11/16	44	43 5/16	42 10/16	41 14/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	20 14/16	20 10/16	20 3/16	19 14/16	19 8/16	19 3/16	18 13/16	18 8/16	18 3/16	17 13/16	17 8/16
OUTSIDE ARC, arc length	41 14/16	41 3/16	40 8/16	39 13/16	39 2/16	38 6/16	37 11/16	37	36 5/16	35 10/16	34 14/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	17 8/16	17 2/16	16 13/16	16 6/16	16 2/16	15 11/16	15 6/16	15	14 11/16	14 5/16	14
OUTSIDE ARC, arc length	34 14/16	34 3/16	33 8/16	32 13/16	32 2/16	31 6/16	30 11/16	30	29 5/16	28 10/16	27 14/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	14	13 10/16	13 5/16	12 14/16	12 10/16	12 3/16	11 14/16	11 8/16	11 3/16	10 13/16	10 8/16
OUTSIDE ARC, arc length	27 14/16	27 3/16	26 8/16	25 13/16	25 2/16	24 6/16	23 11/16	23	22 5/16	21 10/16	20 14/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	10 8/16	10 2/16	9 13/16	9 6/16	9 2/16	8 11/16	8 6/16	8	7 11/16	7 5/16	7
OUTSIDE ARC, arc length	20 14/16	20 3/16	19 8/16	18 13/16	18 3/16	17 8/16	16 13/16	16 2/16	15 6/16	14 11/16	14
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	7	6 10/16	6 5/16	5 14/16	5 10/16	5 3/16	4 14/16	4 8/16	4 3/16	3 13/16	3 8/16
OUTSIDE ARC, arc length	14	13 5/16	12 10/16	11 14/16	11 3/16	10 8/16	9 13/16	9 2/16	8 6/16	7 11/16	7
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	3 8/16	3 2/16	2 13/16	2 6/16	2 2/16	1 11/16	1 6/16	1	11/16	5/16	0
OUTSIDE ARC, arc length	7	6 5/16	5 10/16	4 14/16	4 3/16	3 8/16	2 13/16	2 2/16	1 6/16	11/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 24

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 24

BEND RADIUS, CL 36

BEND RADIUS, outside arc 48

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	37 11/16	37 5/16	36 14/16	36 6/16	36	35 10/16	35 3/16	34 13/16	34 5/16	33 14/16	33 8/16
OUTSIDE ARC, arc length	75 6/16	74 10/16	73 11/16	72 14/16	72	71 3/16	70 6/16	69 8/16	68 11/16	67 14/16	67
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	33 8/16	33 2/16	32 11/16	32 5/16	31 13/16	31 6/16	31	30 10/16	30 3/16	29 11/16	29 5/16
OUTSIDE ARC, arc length	67	66 3/16	65 5/16	64 8/16	63 11/16	62 13/16	62	61 3/16	60 5/16	59 8/16	58 10/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	29 5/16	28 14/16	28 8/16	28 2/16	27 10/16	27 3/16	26 13/16	26 6/16	26	25 10/16	25 2/16
OUTSIDE ARC, arc length	58 10/16	57 13/16	57	56 2/16	55 5/16	54 8/16	53 10/16	52 13/16	51 14/16	51 2/16	50 5/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	25 2/16	24 11/16	24 5/16	23 14/16	23 8/16	23	22 10/16	22 3/16	21 13/16	21 6/16	20 14/16
OUTSIDE ARC, arc length	50 5/16	49 6/16	48 10/16	47 13/16	46 14/16	46 2/16	45 3/16	44 6/16	43 10/16	42 11/16	41 14/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	20 14/16	20 8/16	20 2/16	19 11/16	19 5/16	18 13/16	18 6/16	18	17 10/16	17 3/16	16 13/16
OUTSIDE ARC, arc length	41 14/16	41 2/16	40 3/16	39 6/16	38 8/16	37 11/16	36 14/16	36	35 3/16	34 5/16	33 8/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	16 13/16	16 5/16	15 14/16	15 8/16	15 2/16	14 11/16	14 3/16	13 13/16	13 6/16	13	12 10/16
OUTSIDE ARC, arc length	33 8/16	32 11/16	31 13/16	31	30 3/16	29 5/16	28 8/16	27 10/16	26 13/16	26	25 2/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	12 10/16	12 2/16	11 11/16	11 5/16	10 14/16	10 8/16	10 2/16	9 10/16	9 3/16	8 13/16	8 6/16
OUTSIDE ARC, arc length	25 2/16	24 5/16	23 8/16	22 10/16	21 13/16	20 14/16	20 2/16	19 5/16	18 6/16	17 10/16	16 13/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	8 6/16	8	7 8/16	7 2/16	6 11/16	6 5/16	5 14/16	5 6/16	5	4 10/16	4 3/16
OUTSIDE ARC, arc length	16 13/16	15 14/16	15 2/16	14 3/16	13 6/16	12 10/16	11 11/16	10 14/16	10 2/16	9 3/16	8 6/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	4 3/16	3 13/16	3 6/16	2 14/16	2 8/16	2 2/16	1 11/16	1 5/16	13/16	6/16	0
OUTSIDE ARC, arc length	8 6/16	7 8/16	6 11/16	5 14/16	5	4 3/16	3 6/16	2 8/16	1 11/16	13/16	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 30

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 30

BEND RADIUS, CL 45

BEND RADIUS, outside arc 60

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	47 2/16	46 10/16	46 2/16	45 10/16	45	44 8/16	44	43 8/16	42 14/16	42 6/16	41 14/16
OUTSIDE ARC, arc length	94 3/16	93 3/16	92 3/16	91 2/16	90 2/16	89	88	86 14/16	85 14/16	84 13/16	83 13/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	41 14/16	41 6/16	40 13/16	40 5/16	39 13/16	39 5/16	38 11/16	38 3/16	37 11/16	37 3/16	36 11/16
OUTSIDE ARC, arc length	83 13/16	82 11/16	81 11/16	80 10/16	79 10/16	78 8/16	77 8/16	76 6/16	75 6/16	74 6/16	73 5/16
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	36 11/16	36 2/16	35 10/16	35 2/16	34 10/16	34	33 8/16	33	32 8/16	31 14/16	31 6/16
OUTSIDE ARC, arc length	73 5/16	72 5/16	71 3/16	70 3/16	69 2/16	68 2/16	67	66	64 14/16	63 14/16	62 13/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	31 6/16	30 14/16	30 6/16	29 13/16	29 5/16	28 13/16	28 5/16	27 13/16	27 3/16	26 11/16	26 3/16
OUTSIDE ARC, arc length	62 13/16	61 13/16	60 11/16	59 11/16	58 10/16	57 10/16	56 8/16	55 8/16	54 8/16	53 6/16	52 6/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	26 3/16	25 11/16	25 2/16	24 10/16	24 2/16	23 10/16	23	22 8/16	22	21 8/16	20 14/16
OUTSIDE ARC, arc length	52 6/16	51 5/16	50 5/16	49 3/16	48 3/16	47 2/16	46 2/16	45	44	42 14/16	41 14/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	20 14/16	20 6/16	19 14/16	19 6/16	18 13/16	18 5/16	17 13/16	17 5/16	16 13/16	16 3/16	15 11/16
OUTSIDE ARC, arc length	41 14/16	40 13/16	39 13/16	38 11/16	37 11/16	36 11/16	35 10/16	34 10/16	33 8/16	32 8/16	31 6/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	15 11/16	15 3/16	14 11/16	14 2/16	13 10/16	13 2/16	12 10/16	12	11 8/16	11	10 8/16
OUTSIDE ARC, arc length	31 6/16	30 6/16	29 5/16	28 5/16	27 3/16	26 3/16	25 2/16	24 2/16	23	22	20 14/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	10 8/16	9 14/16	9 6/16	8 14/16	8 6/16	7 14/16	7 5/16	6 13/16	6 5/16	5 13/16	5 3/16
OUTSIDE ARC, arc length	20 14/16	19 14/16	18 13/16	17 13/16	16 13/16	15 11/16	14 11/16	13 10/16	12 10/16	11 8/16	10 8/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	5 3/16	4 11/16	4 3/16	3 11/16	3 2/16	2 10/16	2 2/16	1 10/16	1	8/16	0
OUTSIDE ARC, arc length	10 8/16	9 6/16	8 6/16	7 5/16	6 5/16	5 3/16	4 3/16	3 2/16	2 2/16	1	0

PIPE BEND DIMENSIONS

VARIABLES

PIPE SIZE

nominal, in inches 36

BEND RADIUS

in pipe diameters 1.5

CALCULATED BEND RADIUS VALUES (NOT ACTUAL INSIDE OR OUTSIDE ARC LENGTHS)

BEND RADIUS, inside arc 36

BEND RADIUS, CL 54

BEND RADIUS, outside arc 72

BEND ANGLE	90	89	88	87	86	85	84	83	82	81	80
INSIDE ARC, arc length	56 8/16	55 14/16	55 5/16	54 11/16	54	53 6/16	52 13/16	52 3/16	51 8/16	50 14/16	50 5/16
OUTSIDE ARC, arc length	113 2/16	111 13/16	110 10/16	109 5/16	108 2/16	106 13/16	105 10/16	104 5/16	103	101 13/16	100 8/16
BEND ANGLE	80	79	78	77	76	75	74	73	72	71	70
INSIDE ARC, arc length	50 5/16	49 10/16	49	48 6/16	47 13/16	47 2/16	46 8/16	45 14/16	45 3/16	44 10/16	44
OUTSIDE ARC, arc length	100 8/16	99 5/16	98	96 13/16	95 8/16	94 3/16	93	91 11/16	90 8/16	89 3/16	88
BEND ANGLE	70	69	68	67	66	65	64	63	62	61	60
INSIDE ARC, arc length	44	43 6/16	42 11/16	42 2/16	41 8/16	40 13/16	40 3/16	39 10/16	39	38 5/16	37 11/16
OUTSIDE ARC, arc length	88	86 11/16	85 8/16	84 3/16	82 14/16	81 11/16	80 6/16	79 3/16	77 14/16	76 11/16	75 6/16
BEND ANGLE	60	59	58	57	56	55	54	53	52	51	50
INSIDE ARC, arc length	37 11/16	37 2/16	36 6/16	35 13/16	35 3/16	34 10/16	33 14/16	33 5/16	32 11/16	32	31 6/16
OUTSIDE ARC, arc length	75 6/16	74 2/16	72 14/16	71 10/16	70 6/16	69 2/16	67 14/16	66 10/16	65 5/16	64 2/16	62 13/16
BEND ANGLE	50	49	48	47	46	45	44	43	42	41	40
INSIDE ARC, arc length	31 6/16	30 13/16	30 3/16	29 8/16	28 14/16	28 5/16	27 10/16	27	26 6/16	25 13/16	25 2/16
OUTSIDE ARC, arc length	62 13/16	61 10/16	60 5/16	59 2/16	57 13/16	56 8/16	55 5/16	54	52 13/16	51 8/16	50 5/16
BEND ANGLE	40	39	38	37	36	35	34	33	32	31	30
INSIDE ARC, arc length	25 2/16	24 8/16	23 14/16	23 3/16	22 10/16	22	21 6/16	20 11/16	20 2/16	19 8/16	18 13/16
OUTSIDE ARC, arc length	50 5/16	49	47 13/16	46 8/16	45 3/16	44	42 11/16	41 8/16	40 3/16	39	37 11/16
BEND ANGLE	30	29	28	27	26	25	24	23	22	21	20
INSIDE ARC, arc length	18 13/16	18 3/16	17 10/16	17	16 5/16	15 11/16	15 2/16	14 8/16	13 13/16	13 3/16	12 10/16
OUTSIDE ARC, arc length	37 11/16	36 6/16	35 3/16	33 14/16	32 11/16	31 6/16	30 3/16	28 14/16	27 10/16	26 6/16	25 2/16
BEND ANGLE	20	19	18	17	16	15	14	13	12	11	10
INSIDE ARC, arc length	12 10/16	11 14/16	11 5/16	10 11/16	10 2/16	9 6/16	8 13/16	8 3/16	7 8/16	6 14/16	6 5/16
OUTSIDE ARC, arc length	25 2/16	23 14/16	22 10/16	21 6/16	20 2/16	18 13/16	17 10/16	16 5/16	15 2/16	13 13/16	12 10/16
BEND ANGLE	10	9	8	7	6	5	4	3	2	1	0
INSIDE ARC, arc length	6 5/16	5 11/16	5	4 6/16	3 13/16	3 2/16	2 8/16	1 14/16	1 5/16	10/16	0
OUTSIDE ARC, arc length	12 10/16	11 5/16	10 2/16	8 13/16	7 8/16	6 5/16	5	3 13/16	2 8/16	1 5/16	0