

## CORRUGATED STEEL PIPE

2" X \*" OR 2-2/3" X \*" CORRUGATIONS – RIVETED, WELDED, OR HELICAL FABRICATION  
 MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SIZE (inches)	MINIMUM COVER (inches)	0.064" (16 gage)	0.079" (14 gage)	0.109" (12 gage)		0.138" (10 gage)		0.168" (8 gage)	
		Circular	Circular	Circular	Elongated	Circular	Elongated	Circular	Elongated
MAXIMUM COVER - FEET									
12	12	83	90						
15	12	67	73	93					
18	12	55	67	70					
24	12	36	40	47		57			
30	12		31	35		40		50	
36	12		20	30		35		40	
42	12			26	59	29	54	35	58
48	12			24	48	25	50	26	52
54	12			23	45	24	48	25	50
60	12	NOTE: WITH METHOD "B" INSTALLATION FILL HEIGHTS MAY BE INCREASED BY 50% OF TABLE VALUES				23	46	23	48
66	12					20	40	23	46
72	12					18	30	22	40
78	12							22	30
84	12							22	25

See Roadway Standards, Std. No. 300.02

## CORRUGATED STEEL PIPE ARCHES

### MAXIMUM HEIGHT OF COVER LIMITS IN FEET

PIPE ARCH DIMENSIONS (inches)	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)	MAXIMUM COVER - FEET (for Corner Bearing Pressure)	
			(2 tons/ft <sup>2</sup> )	(3 tons/ft <sup>2</sup> )
17 X 13	18	0.064	16	23
21 X 15	18	0.064	15	22
24 X 18	18	0.064	13	19
28 X 20	18	0.064	12	18
35 X 24	18	0.079	11	17
42 X 29	18	0.079	10	15
49 X 33	18	0.109	10	14
57 X 38	18	0.109	10	14
64 X 43	18	0.109	10	14
71 X 47	18	0.138	10	15
77 X 52	18	0.168	10	15
83 X 57	18	0.168	9	14

Heavier gages may be used where required for abrasion, corrosion or other factors, but not for additional fill on arches as corner pressures govern amount of fill.

## CORRUGATED ALUMINUM PIPE

### 3" x 1" CORRUGATIONS MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SIZE (inches)	AREA	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)							
			0.075		0.105		0.135		0.164	
			Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.
MAXIMUM COVER - FEET										
36	7.1	12	24	37	27	51	30	61	34	68
42	9.6	12			23	44	25	51	27	55
48	12.6	12			21	38	22	45	24	48
54	15.9	12			20	34	21	42	22	44
60	19.6	12			19	31	20	40	20	41
66	23.8	12			18	28	19	38	19	39
72	28.3	12			18	25	18	37	19	38
78	33.0	12			18	23	18	31	18	37
84	38.0	18			17	19	18	25	18	31
90	44.0	18			15		17	20	18	25
96	50.0	18			12		16		17	21
102	57.0	24					14		17	
108	64.0	24					11		14	
114	71.0	24							12	
120	78.0	24							10	

See Roadway Standards, Std. No. 300.02

## CORRUGATED STEEL PIPE

3" X 1" CORRUGATIONS - RIVETED, WELDED, OR HELICAL FABRICATION  
 MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SIZE (inches)	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)							
		0.079 (14 gage)		0.109 (12 gage)		0.138 (10 gage)		0.168 (8 gage)	
		Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.
		MAXIMUM COVER - FEET							
36	12	47	60	58	88	70	106	82	118
42	12			44	76	51	91	59	101
48	12			36	66	41	80	46	88
54	12			31	59	35	71	38	76
60	12			28	58	31	62	33	66
66	12			26	48	30	58	32	64
72	12			25	44	28	56	30	60
78	12			24	41	26	52	28	56
84	18			22	36	24	46	28	56
90	18			20	33	22	43	26	53
96	18			17	31	20	40	25	49
102	24					19	38	23	46
108	24					18	35	21	42
114	24					16	32	19	38
120	24					15	29	18	36

Note: With Method "B" installation, fill heights may be increased by 50%.  
 See Roadway Standards, Std. No. 300.02

## CORRUGATED STEEL PIPE ARCHES

3" X 1" CORRUGATIONS - RIVETED, WELDED, OR HELICAL FABRICATION  
 MAXIMUM HEIGHT OF COVER LIMITS IN FEET

EQUIVALENT PIPE DIAMETER (inches)	PIPE ARCH DIMENSIONS (inches)	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) gage (inches)	MAXIMUM COVER - FEET (for Corner Bearing Pressure)	
				(2 tons/ft <sup>2</sup> )	(3 tons/ft <sup>2</sup> )
36	40 X 31	12	14 (0.079)	14	21
42	46 X 36	12	12 (0.109)	14	21
48	53 X 41	12	12 (0.109)	14	21
54	60 X 46	12	12 (0.109)	14	21
60	66 X 51	12	12 (0.109)	14	21
66	73 X 55	12	12 (0.109)	19	28
72	81 X 59	12	12 (0.109)	17	26
78	87 X 63	12	12 (0.109)	16	24
84	95 X 67	12	12 (0.109)	15	22
90	103 X 71	18	12 (0.109)	13	20
96	112 X 75	18	12 (0.109)	13	18
102	117 X 79	18	10 (0.138)	12	18
108	128 X 83	24	10 (0.138)	11	16
114	137 X 87	24	10 (0.138)	10	15
120	142 X 91	24	10 (0.138)	10	15

Heavier gages may be used where required for durability or other factors, but not for additional fill, as corner pressures govern amount of fill.

## CORRUGATED ALUMINUM PIPE ARCHES

2" X \*" OR 2-1/2" X \*" CORRUGATIONS – RIVETED OR HELICAL FABRICATION  
 MAXIMUM HEIGHT OF COVER LIMITS IN FEET

PIPE ARCH DIMENSIONS (inches)	CORNER RADIUS (inches)	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)	MAXIMUM COVER - FEET (for Corner Bearing Pressure)	
				(2 tons/ft <sup>2</sup> )	(3 tons/ft <sup>2</sup> )
18 X 11	4-3/4	18	0.060	16	23
22 X 13	4-3/4	18	0.060	15	22
25 X 16	4-1/2	18	0.075	13	19
29 X 18	4-1/2	18	0.075	12	18
36 X 22	5	18	0.075	11	17
43 X 27	5-1/2	18	0.105	10	15
50 X 31	6	18	0.105	10	14
58 X 36	7	18	0.135	10	14
65 X 40	8	18	0.135	10	15
72 X 44	9	18	0.164	10	15

Heavier gages may be used where required for abrasion, corrosion or other factors, but not for additional fill on arches as corner pressures govern amount of fill.

## STRUCTURAL PLATE STEEL PIPE

6" X 2" CORRUGATIONS – BOLTED FABRICATIONS  
 MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SIZE	MINIMUM COVER	MINIMUM THICKNESS (t) (inches)															
		0.109 12 gage		0.138 10 gage		0.168 8 gage		0.188 7 gage		0.218 5 gage		0.249 3 gage		0.280 1 gage		0.280 * 1 gage	
		Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.	6 Bolts Cir.	8 Bolts El.
MAXIMUM COVER - FEET																	
60"	12"	42	42	61	62	70	81	76	93	86	112	96	132	106	144	184	220
66"	12"	38	38	49	58	60	74	64	85	72	102	80	120	83	130	168	198
72"	12"	35	35	38	51	50	67	53	77	59	93	65	108	71	118	157	181
78"	12"	32	32	36	47	44	62	46	71	51	83	55	100	60	109	143	159
84"	12"	30	30	35	44	39	57	41	66	45	75	49	95	52	102	131	145
90"	12"	28	28	33	40	35	53	37	61	40	72	43	84	45	91	122	133
96"	12"	26	26	31	38	33	50	34	58	36	70	39	78	41	82	115	124
102"	24"			29	36	31	47	32	54	34	65	36	72	38	75	107	117
108"	24"			27	34	29	45	30	51	32	62	34	68	35	70	102	112
114"	24"			26	33	28	42	29	48	31	58	32	63	34	65	96	107
120"	24"			25	31	27	40	28	46	29	56	30	60	33	62	92	104
126"	24"					26	37	26	44	27	52	29	58	30	59	86	100
132"	24"					25	36	25	42	26	50	28	56	29	58	83	98
138"	24"					24	34	25	39	25	48	27	54	28	55	79	94
144"	24"					24	33	25	38	25	46	26	52	27	54	76	92
156"	24"					23	31	23	35	24	43	25	50	26	52	70	85
168"	24"					23	28	23	33	23	40	24	47	25	50	65	78
180"	24"					22	27	22	31	23	37	23	44	24	48	61	73
192"	24"					22	25	22	29	23	35	23	41	23	45	57	69
204"	36"					22	23	22	27	22	33	22	39	23	42	54	65

\*EXCELLENT BACKFILL 95% DENSITY

## STRUCTURAL PLATE STEEL PIPE ARCHES

6" X 2" CORRUGATIONS - 18" CORNER RADIUS  
 MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SPAN	RISE	AREA	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (gage)	MAXIMUM COVER - FEET (for Corner Bearing Pressure)	
					(2 tons/ft <sup>2</sup> )	(3 tons/ft <sup>2</sup> )
6'-1"	4'-7"	22	24	12	16	24
6'-4"	4'-7"	24	24	12	15	23
6'-9"	4'-11"	26	24	12	14	21
7'-0"	5'-1"	28	24	12	14	21
7'-3"	5'-3"	31	24	12	13	20
7'-8"	5'-5"	33	24	12	12	19
7'-11"	5'-7"	35	24	12	12	18
8'-2"	5'-9"	38	24	12	12	18
8'-7"	5'-11"	40	24	12	11	17
8'-10"	6'-1"	43	24	12	11	16
9'-4"	6'-3"	46	24	12	10	16
9'-6"	6'-5"	49	24	12	10	15
9'-9"	6'-7"	52	24	10	10	15
10'-3"	6'-9"	55	36	10	9	14
10'-8"	6'-11"	58	36	10	9	13
10'-11"	7'-1"	61	36	10	9	13
11'-5"	7'-3"	64	36	10	8	13
11'-7"	7'-5"	67	36	10	8	12
11'-10"	7'-7"	71	36	10	8	12
12'-4"	7'-9"	74	36	8	8	12
12'-6"	7'-11"	78	36	8	8	12
12'-8"	8'-1"	81	36	8	7	11
12'-10"	8'-4"	85	36	8	7	11
13'-5"	8'-5"	89	36	8	7	11
13'-11"	8'-7"	93	36	8	7	10
14'-1"	8'-9"	97	48	8	7	10
14'-3"	8'-11"	101	48	8	6	10
14'-10"	9'-1"	105	48	8	6	10
15'-4"	9'-3"	109	48	8	6	9
15'-6"	9'-5"	113	48	8	6	9
15'-8"	9'-7"	118	48	8	6	9
15'-10"	9'-10"	122	48	8	6	9
16'-5"	9'-11"	126	48	8	6	9
16'-7"	10'-1"	131	48	8	6	9

## STRUCTURAL PLATE STEEL PIPE ARCHES

6" X 2" CORRUGATIONS - 31" CORNER RADIUS  
 MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SPAN	RISE	AREA	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (gage)	MAXIMUM COVER - FEET (for Corner Bearing Pressure)	
					(2 tons/ft <sup>2</sup> )	(3 tons/ft <sup>2</sup> )
13'-3"	9'-4"	97	48	8	12	19
13'-6"	9'-6"	102	48	8	12	19
14'-0"	9'-8"	105	48	8	12	18
14'-2"	9'-10"	109	48	8	12	18
14'-5"	10'-0"	114	48	8	11	17
14'-11"	10'-2"	118	48	8	11	17
15'-4"	10'-4"	123	48	8	11	16
15'-7"	10'-6"	127	48	8	10	16
15'-10"	10'-8"	132	48	8	10	16
16'-3"	10'-10"	137	48	8	10	15
16'-6"	11'-0"	142	48	8	10	15
17'-0"	11'-2"	146	48	8	10	15
17'-2"	11'-4"	151	48	8	9	14
17'-5"	11'-6"	157	48	8	9	14
17'-11"	11'-8"	161	48	8	9	14
18'-1"	11'-10"	167	48	8	9	14
18'-7"	12'-0"	172	48	8	9	13
18'-9"	12'-2"	177	48	8	9	13
19'-3"	12'-4"	182	48	8	8	13
19'-6"	12'-6"	188	48	8	8	13
19'-8"	12'-8"	194	48	8	8	12
19'-11"	12'-10"	200	48	8	8	12
20'-5"	13'-0"	205	48	8	8	11
20'-7"	13'-2"	211	48	8	8	11

## STRUCTURAL PLATE ALUMINUM PIPE ARCH

9" X 2-1/2" CORRUGATIONS - 28.8" CORNER RADIUS  
MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SPAN	RISE	AREA	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)	MAXIMUM COVER - FEET (for Corner Bearing Pressure)	
					(2 tons/ft <sup>2</sup> )	(3 tons/ft <sup>2</sup> )
5'-11"	5'-4"	25	24	0.100	24	32*
6'-8"	5'-7"	29	24	0.100	22	29*
7'-4"	5'-11"	34	24	0.100	20	26*
8'-0"	6'-2"	39	24	0.100	18	24*
8'-7"	6'-6"	45	24	0.100	17	22*
9'-0"	6'-8"	48	24	0.100	16	21*
9'-4"	6'-10"	50	24	0.125	17	20
10'-0"	7'-1"	56	36	0.125	16	19
10'-5"	7'-3"	60	36	0.125	15	18
11'-2"	7'-6"	66	36	0.125	14	17
11'-8"	7'-10"	73	36	0.125	13	16
12'-2"	8'-0"	76	36	0.150	13	19
12'-10"	8'-3"	83	36	0.150	12	18
13'-7"	8'-7"	91	36	0.150	11	17
14'-3"	8'-10"	98	48	0.150	11	16
14'-9"	9'-2"	107	48	0.150	10	16
15'-3"	9'-4"	111	48	0.150	10	15
16'-0"	9'-7"	119	48	0.150	10	14
16'-8"	9'-11"	128	48	0.150	9	12
16'-11"	10'-1"	132	48	0.150	9	12

\* 0.125" Minimum Thickness Required

## STRUCTURAL PLATE ALUMINUM PIPE

9" X 2-1/2" CORRUGATIONS  
MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SIZE (inches)	AREA	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)													
			0.100		0.125		0.150		0.175		0.200		0.225		0.250	
			Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.	Cir.	El.
			MAXIMUM COVER - FEET													
72	28	12	24		26	32	28	41	30	48	32	55	34	61	36	66
84	38	18	20		23	27	24	35	25	41	26	47	28	52	29	57
96	50	18	18		21	24	22	30	22	36	23	41	24	45	25	50
108	64	24			19	21	20	27	21	32	21	37	22	40	22	44
120	78	24			19	19	19	24	20	29	20	33	20	36	21	40
132	95	24					18	22	19	26	19	30	19	33	20	36
144	113	30					18	20	18	24	19	27	19	30	19	33
156	133	30					18	18	18	22	18	25	18	28	19	30
168	154	30					17		18	20	18	23	18	26	18	28
180	177	30					16		17	19	18	22	18	24	18	26

## CORRUGATED ALUMINUM PIPE

3" X 1" CORRUGATIONS  
MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SIZE (inches)	AREA	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)							
			0.075		0.105		0.135		0.164	
			Circular	Elongated	Circular	Elongated	Circular	Elongated	Circular	Elongated
			MAXIMUM COVER - FEET							
36	7.1	12	24	37	27	51	30	61	34	68
42	9.6	12			23	44	25	51	27	55
48	12.6	12			21	38	22	45	24	48
54	15.9	12			20	34	21	42	22	44
60	19.6	12			19	31	20	40	20	41
66	23.8	12			18	28	19	38	19	39
72	28.3	12			18	25	18	37	19	38
78	33	12			18	23	18	31	18	37
84	38	18			17	19	18	25	18	31
90	44	18			15		17	20	18	25
96	50	18			12		16		17	21
102	57	24					14		17	
108	64	24					11		14	
114	71	24							12	
120	78	24							10	

## STEEL SPIRAL RIB PIPE

### MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SIZE (inches)	MINIMUM COVER (inches)	MINIMUM THICKNESS (t)		
		gage (inches)		
		16 (0.064)	14 (0.079)	12 (0.109)
MAXIMUM COVER - FEET				
18	12	50		
24	12	35	50	90
30	12		40	70
36	12		30	60
42	12			50
48	12			45
54	12			35
60	12			35
66	15			30
72	15			30
78	18			[25]
84	21			[25]
90	24			<20>
96	24			<20>
102	24			<20>

[ ] Condition 2 - Installation per ASTM A798 with trench conditions are required.

< > Condition 3 – Same as condition 2 except select granular backfill required.

**STEEL  
SPIRAL RIB PIPE ARCH**

**MAXIMUM HEIGHT OF COVER LIMITS IN FEET**

PIPE ARCH DIMENSIONS (inches)	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)	MAXIMUM COVER - FEET (for Corner Bearing Pressure) (2 tons/ft <sup>2</sup> )
20 X 16	12	0.064"	15
27 x 21	12	0.064"	15
33 x 26	12	0.079"	15
40 x 31	12	0.079"	15
46 x 36	12	0.109"	15
53 x 41	12	0.109"	15
60 x 46	12	0.109"	15
66 x 51	12	0.109"	15

## ALUMINUM SPIRAL RIB PIPE

### MAXIMUM HEIGHT OF COVER LIMITS IN FEET

SIZE (inches)	MINIMUM COVER (inches)	MINIMUM THICKNESS (t) (inches)			
		0.060	0.075	0.105	0.135
		MAXIMUM COVER - FEET			
18	12	40			
24	12		40		
30	12		30	50	
36	12			45	60
42	15			35	55
48	18			30	45
54	21			[30]	40
60	18				35
66	21				35
72	24				[30]
78	30				<25>
84	30				<25>

[ ] Condition 2 - Installation per ASTM A798 with trench conditions are required.

<> Condition 3 – Same as condition 2 except select granular backfill required.

**ALUMINUM  
SPIRAL RIB PIPE ARCH**

**MAXIMUM HEIGHT OF COVER LIMITS IN FEET**

<b>PIPE ARCH DIMENSIONS</b>  (inches)	<b>MINIMUM COVER</b>  (inches)	<b>MINIMUM THICKNESS (t)</b>  (inches)	<b>MAXIMUM COVER - FEET</b> (for Corner Bearing Pressure)  (2 tons/ft <sup>2</sup> )
20 x 16	12	0.060	15
27 x 21	12	0.075	15
33 x 26	12	0.105	15
40 x 31	12	0.105	15
46 x 36	12	0.105	15
53 x 41	12	0.105	15
60 x 46	12	0.135	15
66 x 51	12	0.135	15

**PVC  
CORRUGATED DOUBLE WALL PLASTIC PIPE**

**MAXIMUM HEIGHT OF COVER LIMITS IN FEET**

<b>PIPE SIZE (inches)</b>	<b>MINIMUM COVER (inches)</b>	<b>MAXIMUM COVER (feet)</b>
8	12	20
12	12	20
15	12	20
18	12	20
24	12	20
30	12	20
36	12	20

**HDPE  
CORRUGATED DOUBLE WALL PLASTIC PIPE**

**MAXIMUM HEIGHT OF COVER LIMITS IN FEET**

<b>PIPE SIZE (inches)</b>	<b>MINIMUM COVER (inches)</b>	<b>MAXIMUM COVER (feet)</b>
12	12	20
15	12	20
18	12	20
24	12	20
30	12	20
36	12	20
42	12	20
48	12	20