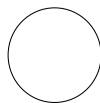


## Heights of Cover

### 5" x 1" or 3" x 1" Height of Cover Limits for Corrugated Steel Pipe



#### H 20 and H 25 Live Loads

Diameter (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)				
		Specified Thickness (Inches) and Gage				
		(0.064) 16	(0.079) 14	(0.109) 12	(0.138) 10	(0.168) 8
54	12	56	70	98	127	155
60	12	50	63	88	114	139
66	12	46	57	80	103	127
72	12	42	52	74	95	116
78	12	39	48	68	87	107
84	12	36	45	63	81	99
90	12	33	42	59	76	93
96	12	31	39	55	71	87
102	18	29	37	52	67	82
108	18		35	49	63	77
114	18		32	45	58	72
120	18		30	42	54	66
126	18			39	50	61
132	18			36	46	58
138	18			33	43	53
144	18				39	49

Maximum cover heights shown are for 5" x 1".

To obtain maximum cover for 3" x 1", increase these values by 12%.

#### E 80 Live Loads

Diameter or Span (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)				
		Specified Thickness (Inches) and Gage				
		(0.064) 16	(0.079) 14	(0.109) 12	(0.138) 10	(0.168) 8
54	18	56	70	98	127	155
60	18	50	63	88	114	139
66	18	46	57	80	103	127
72	18	42	52	74	95	116
78	24	39	48	68	87	107
84	24	36	45	63	81	99
90	24	33 <sup>(1)</sup>	42	59	76	93
96	24	31 <sup>(1)</sup>	39	55	71	87
102	30	29 <sup>(1)</sup>	37	52	67	82
108	30		35	49	63	77
114	30		32 <sup>(1)</sup>	45	58	72
120	30		30 <sup>(1)</sup>	42	54	66
126	36			39	50	61
132	36			36	46	58
138	36			33 <sup>(1)</sup>	43	53
144	36				39	49

Maximum cover heights shown are for 5" x 1".

To obtain maximum cover for 3" x 1", increase these values by 12%.

(1) These diameters in these gages require additional minimum cover.

### 5" x 1" Pipe-Arch Height of Cover Limits for Corrugated Steel Pipe



#### H 20 and H 25 Live Loads

Size		Minimum Thickness (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)
Round Equivalent (Inches)	Span x Rise (Inches)			
72	81 x 59	0.109	18	21
78	87 x 63	0.109	18	20
84	95 x 67	0.109	18	20
90	103 x 71	0.109	18	20
96	112 x 75	0.109	21	20
102	117 x 79	0.109	21	19
108	128 x 83	0.109	24	19
114	137 x 87	0.109	24	19
120	142 x 91	0.138	24	19

Larger sizes are available in some areas of the United States. Check with your local Contech representative. Some minimum heights of cover for pipe-arches have been increased to take into account allowable "plus" tolerances on the manufactured rise.

#### E 80 Live Loads

Size		Minimum Thickness (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)
Round Equivalent (Inches)	Span x Rise (Inches)			
72	81 x 59	0.109	30	21
78	87 x 63	0.109	30	18
84	95 x 67	0.109	30	18
90	103 x 71	0.109	36	18
96	112 x 75	0.109	36	18
102	117 x 79	0.109	36	17
108	128 x 83	0.109	42	17
114	137 x 87	0.109	42	17
120	142 x 91	0.138	42	17

Some 3" x 1" and 5" x 1" minimum gages shown for pipe-arch are due to manufacturing limitations.

#### Heights of Cover Notes:

1. These tables are for lock-seam or welded-seam construction. They are not for riveted construction. Consult your Contech Sales Representative for Height of Cover tables on riveted pipe.
2. These values, where applicable, were calculated using a load factor of  $K=0.86$  as adopted in the NCSPA CSP Design Manual, 2008.
3. The span and rise shown in these tables are nominal. Typically the actual rise that forms is greater than the specified nominal. This actual rise is within the tolerances as allowed by the AASHTO & ASTM specifications. The minimum covers shown are more conservative than required by the AASHTO and ASTM specifications to account for this anticipated increase in rise. Less cover height may be tolerated depending upon actual rise of supplied pipe-arch.
4. The haunch areas of a pipe-arch are the most critical zone for backfilling. Extra care should be taken to provide good material and compaction to a point above the spring line.
5. E 80 minimum cover is measured from top of pipe to bottom of tie.
6. H 20 and H 25 minimum cover is measured from top of pipe to bottom of flexible pavement or top of rigid pavement.
7. The pipe-arch tables are based on the corner bearing pressures as shown. These values may increase or decrease with changes in allowable corner bearing pressures. Consider the use of a round pipe in cases where the height of cover exceeds 8'.
8. For construction loads, see Page 15.
9. Smooth Cor™ has same Height of Cover properties as corrugated steel pipe. The exterior shell of Smooth Cor™ is manufactured in either 2<sup>2</sup>/<sub>3</sub>" x 1<sup>1</sup>/<sub>2</sub>" or 3" x 1" corrugations; maximum exterior shell is 12 GA.