

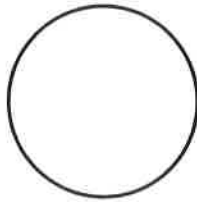
AISI-1						
Height of Cover Limits for Steel Pipe H20 or H25 Live Load • 2-2/3 x 1/2 Corrugation						
Diameter or Span, in.	Min.* Cover, in.	Maximum Cover (ft) for Specified Thickness (in.)				
		0.064	0.079	0.109	0.138	0.168
12	12	248	310			
15	12	198	248			
18	12	165	206			
21	12	141	177	248		
24	12	124	155	217		
30	12	99	124	173		
36	12	83	103	145	186	
42	12	71	88	124	159	195
48	12	62	77	108	139	171
54	12	(53)	67	94	122	150
60	12		(57)	80	104	128
66	12			68	88	109
72	12			(57)	75	93
78	12			(48)	63	79
84	12			(40)	52	66
90	12			(32)	43	54
96	12				35	45

Notes:
 1. Fill heights in parentheses require standard trench installation; all others may be embankment or trench.
 2. In 12 in. through 36 in. diameter, heavier gages may be available - check with the manufacturer.
 * Minimum covers are measured from top of pipe to bottom of flexible pavement or top of pipe to top of rigid pavement. Minimum covers must be maintained in unpaved traffic areas.

AISI-5						
Height of Cover Limits for Steel Pipe E80 Live Load • 2-2/3 x 1/2 Corrugation						
Diameter or Span, in.	Min.* Cover, in.	Maximum Cover (ft) for Specified Thickness (in.)				
		0.064	0.079	0.109	0.138	0.168
12	12	248	310	434		
15	12	198	248	347	446	546
18	12	165	206	289	372	455
21	12	141	177	248	319	390
24	12	124	155	217	279	341
30	12	99	124	173	223	273
36	12	83	103	145	186	227
42	12	71	88	124	159	195
48	12	62	77	108	139	171
54	14		67	94	122	150
60	15			80	104	128
66	17			68	88	109
72	18				75	93
78	20					79
84	21					66

Note:
 * From top of pipe to bottom of tie.

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AISI-2

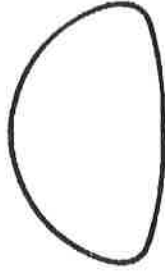
Height of Cover Limits for Spiral Rib Steel Pipe
H20 or H25 Live Load • 3/4 x 3/4 x 7-1/2 in.

Diameter or Span, in.	Min.* Cover, in.	Maximum Cover (ft) for Specified Thickness (in.)		
		0.064	0.079	0.109
24	12	81	114	189
30	12	65	91	151
36	12	54	76	126
42	12	47	65	108
48	12	41	57	95
54	18	(36)	51	84
60	18	[33]	46	76
66	18	[30]	(41)	69
72	18		[38]	62
78	24		[34]	55
84	24			(49)
90	24			[43]
96	24			[38]
102	30			[34]
108	30			[40]
114	30			[35]
120	30			[30]

Notes:

- Except as noted, installations may be embankment or trench.
 - () Fill heights in parentheses require Type II trench installation.
 - [] Fill heights in brackets require Type III trench installation.
- * Minimum covers are measured from top of pipe to bottom of flexible pavement or top of rigid pavement or top of rigid pavement. Minimum covers must be maintained in unpaved traffic areas.

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AISI-10

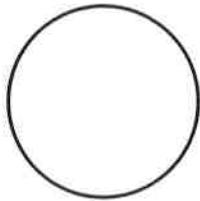
Height-of-Cover Limits for Steel Spiral Rib Pipe Arch
H20 or H25 Live Load • 3/4 x 3/4 x 7 1/2 in. and 3/4 x 1 x 11 1/2 in. Configurations

Span & Rise in.	Minimum Specified Thickness Required in.	Minimum Cover in.	Maximum Cover (ft) Over Pipe Arch for Soil Corner Bearing Capacity of 2 tons/ft ²
20 x 16	0.064	12	13
23 x 19	0.064	12	14
27 x 21	0.064	12	13
33 x 26	0.064	12	13
40 x 31	0.064	12	13
46 x 36	0.064	12	14
53 x 41	0.064	18	(13)
60 x 46	0.079	18	20
66 x 51	0.079	18	(21)
73 x 55	0.109	18	21
81 x 59	0.109	18	(17)
87 x 63	0.109	18	(17)
95 x 67	0.109	18	(17)

Notes:

- Soil bearing capacity refers to the soil in the region of the pipe corners. See Chapter 10.
- Minimum covers are for H20 and H25 loads. See Table 10.1 for heavy construction load requirements. Minimum covers are measured from top of pipe to bottom of flexible pavement or top of rigid pavement. Minimum cover must be maintained in unpaved traffic areas.
- TYPE I installations are allowed unless otherwise shown.
- () Requires TYPE II installation
- [] Requires TYPE III installation
- For more details on TYPE I, II, and III installations, refer to the section on Installation and Backfill of Spiral Rib Pipe found earlier in this chapter.

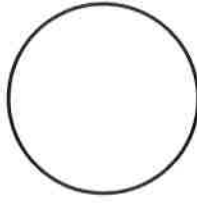
Corrugated Steel Pipe Design Manual



AISI-4						
Height of Cover Limits for Steel Pipe H20 or H25 Live Load • 5 x 1 or 3 x 1 in. Corrugation						
Diameter or Span, in.	Min.* Cover, in.	Maximum Cover (ft) for Specified Thickness (in.)				
		0.064	0.079	0.109	0.138	0.168
54	12	56	70	99	127	155
60	12	51	63	89	114	140
66	12	46	58	81	104	127
72	12	42	53	74	95	117
78	12	39	49	68	88	108
84	12	36	45	63	82	100
90	12	34	42	59	76	93
96	12	32	40	56	71	87
102	18	30	37	52	67	82
108	18	(28)	35	49	64	78
114	18	(26)	33	46	59	72
120	18	(24)	30	42	54	67
126	24	(22)	(28)	39	50	62
132	24		(26)	36	47	57
138	24		(24)	33	43	53
144	24			(31)	40	49

Notes:
 1. Fill heights in parentheses require standard trench installation; all others may be embankment or trench.
 2. Maximum covers shown are for 5 x 1 in.; increase them by 12% for 3 x 1 in.
 • Minimum covers are measured from top of pipe to bottom of flexible pavement or top of pipe to top of rigid pavement. Minimum covers must be maintained in unpaved traffic areas.

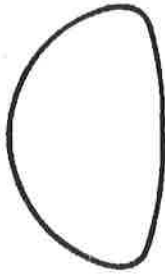
Corrugated Steel Pipe Design Manual



AISI-6						
Height of Cover Limits for Steel Pipe E80 Live Load • 5 x 1 or 3 x 1 in. Corrugation						
Diameter or Span, in.	Min.* Cover, in.	Maximum Cover (ft) for Specified Thickness (in.)				
		0.064	0.079	0.109	0.138	0.168
54	18	56	70	99	127	155
60	18	51	63	89	114	140
66	18	46	58	81	104	127
72	18	42	53	74	95	117
78	24	39	49	68	88	108
84	24	36	45	63	82	100
90	24	33**	42	59	76	93
96	24	31**	40	56	71	87
102	30	29**	37	52	67	82
108	30		35	49	64	78
114	30		32**	46	59	72
120	30		30**	42	54	67
126	36			39	50	62
132	36			36	47	57
138	36			33**	43	53
144	36				40	49

Notes:
 1. Maximum covers shown are for 5 x 1 in.; increase them by 12% for 3 x 1 in.
 • From top of pipe to bottom of tie.
 ** These pipe require additional minimum cover.

Structural Design



AISI-11

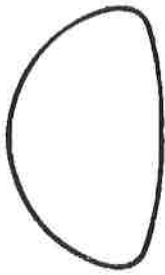
Height-of-Cover Limits for Corrugated Steel Pipe Arch
H20 or H25 Live Load • 5 x 1 in. and 3 x 1 in. Corrugations

Span & Rise in.	Minimum Specified Thickness Required		Minimum* Cover in.	Maximum Cover (ft) Over Pipe Arch for Soil Corner Bearing Capacity of 2 tons/ft ²
	3 x 1 in.	5 x 1** in.		
53 x 41	0.079	0.109	12	25
60 x 46	0.079	0.109	15	25
66 x 51	0.079	0.109	15	25
73 x 55	0.079	0.109	18	24
81 x 59	0.079	0.109	18	21
87 x 63	0.079	0.109	18	20
95 x 67	0.079	0.109	18	20
103 x 71	0.079	0.109	18	20
112 x 75	0.079	0.109	21	20
117 x 79	0.109	0.109	21	19
128 x 83	0.109	0.109	24	19
137 x 87	0.109	0.109	24	19
142 x 91	0.138	0.138	24	19
150 x 96	0.138	0.138	30	19
157 x 101	0.138	0.138	30	19
164 x 105	0.138	0.138	30	19
171 x 110	0.138	0.138	30	19

Notes:

- Soil bearing capacity refers to the soil in the region of the pipe corners. See Chapter 10 for design of pipe envelope at pipe corners. The remaining backfill around the pipe arch must be compacted to a specified AASHTO T-99 density of 90%.
- Use reasonable care in handling and installation.
- Pipe arches are typically used where the cover does not exceed 15 feet.
 - * Minimum covers are for H20 and H25 loads. See Table 10.1 for construction load requirements. Minimum covers are measured from top of pipe to bottom of flexible pavement or top of pipe to top of rigid pavement. Minimum cover must be maintained in unpaved traffic areas.
 - ** Same thicknesses as specified for 3 x 1 may be provided when the corner radius meets the requirements of ASTM A760.

Structural Design



AISI-13

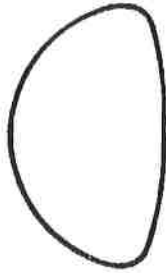
Height-of-Cover for Corrugated Steel Pipe Arch
E80 Live Load • 5 x 1 in. and 3 x 1 in. Corrugations

Span & Rise in.	Minimum Specified Thickness Required		Minimum* Cover in.	Maximum Cover (ft) Over Pipe Arch for Soil Corner Bearing Capacity of 2 tons/ft ²
	3 x 1 in.	5 x 1** in.		
53 x 41	0.079	0.109	24	25
60 x 46	0.079	0.109	24	25
66 x 51	0.079	0.109	24	25
73 x 55	0.079	0.109	30	24
81 x 59	0.079	0.109	30	21
87 x 63	0.079	0.109	30	18
95 x 67	0.079	0.109	30	18
103 x 71	0.079	0.109	36	18
112 x 75	0.079	0.109	36	18
117 x 79	0.109	0.109	36	17
128 x 83	0.109	0.109	42	17
137 x 87	0.109	0.109	42	17
142 x 91	0.138	0.138	42	17
150 x 96	0.138	0.138	48	17
157 x 101	0.138	0.138	48	17
164 x 105	0.138	0.138	48	17
171 x 110	0.138	0.138	48	17

Notes:

- Soil bearing capacity refers to the soil in the region of the pipe corners. See Chapter 10 for design of pipe envelope at pipe corners. The remaining backfill around the pipe arch must be compacted to a specified AASHTO T-99 density of 90%.
- Use reasonable care in handling and installation.
- Pipe arches are typically used where the cover does not exceed 15 feet.
 - * From top of pipe to bottom of tie.
 - ** Lesser thicknesses may be provided if justified by calculations.

Structural Design



AISI-9

Height-of-Cover Limits for Corrugated Steel Pipe Arch
H20 or H25 Live Load • 2-2/3 x 1/2 in. Corrugation

Span & Rise in.	Minimum Specified Thickness Required in.	Maximum Cover (ft) Over Pipe Arch for Soil Corner Bearing Capacity of 2 tons/ft ²	Diameter or Span in.
17 x 13	0.064	16	12
21 x 15	0.064	15	12
24 x 18	0.064	15	12
28 x 20	0.064	15	12
35 x 24	0.064	15	12
42 x 29	0.064	15	12
49 x 33	0.079	15	12
57 x 38	0.109	15	12
64 x 43	0.109	15	12
71 x 47	0.138	15	12
77 x 52	0.168	15	12
83 x 57	0.168	15	12

Notes:

- Soil bearing capacity refers to the soil in the region of the pipe corners. See Chapter 10 for design of pipe envelope at pipe corners. The remaining backfill around the pipe arch must be compacted to a specified AASHTO T-99 density of 90%.
- Use reasonable care in handling and installation.
- Minimum covers are for H20 and H25 loads. See Table 10.1 for construction load requirements. Minimum covers are measured from top of pipe to bottom of flexible pavement or top of pipe to top of rigid pavement. Minimum cover must be maintained in unpaved traffic areas.

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AISI-12

Height-of-Cover for Corrugated Steel Pipe Arch
E80 Live Load • 2-2/3 x 1/2 in. Corrugation

Span & Rise in.	Minimum Specified Thickness Required in.	Minimum* Cover in.	Maximum Cover (ft) Over Pipe Arch for Soil Corner Bearing Capacity of 3 tons/ft ²
17 x 13	0.079	24	22
21 x 15	0.079	24	22
24 x 18	0.109	24	22
28 x 20	0.109	24	22
35 x 24	0.138	24	22
42 x 29	0.1038	24	22
49 x 33	0.168	24	22
57 x 38	0.168	24	22
64 x 43	0.168	24	22
71 x 47	0.168	24	22

Notes:

- Soil bearing capacity refers to the soil in the region of the pipe corners. See Chapter 10 for design of pipe envelope at pipe corners. The remaining backfill around the pipe arch must be compacted to a specified AASHTO T-99 density of 90%.
- Use reasonable care in handling and installation.
- Pipe arches are typically used where the cover does not exceed 15 feet.

* Minimum cover is from top of pipe to bottom of tie.