

### METAL ROUND PIPE CULVERT

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL														ALUMINUM														
PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2 2/3" x 1/2" CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS				PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2 2/3" x 1/2" CORRUGATIONS					3" x 1" CORRUGATIONS					
		METAL THICKNESS (INCH/GAGE)																										
		MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)																										
12	12	100	100	100	100	100									12	12	100	100	100	100	100							
15	12	100	100	100	100	100									15	12	100	100	100	100	100							
18	12	100	100	100	100	100									18	12	100	100	100	100	100							
21	12	100	100	100	100	100									21	12	88	100	100	100	100							
24	12	100	100	100	100	100									24	12	77	97	100	100	100							
30	12	85	100	100	100	100									30	12	62	77	100	100	100	71	89	100	100	100		
36	12	71	89	100	100	100	81	100	100	100	100				36	12	52	64	90	100	100	59	74	100	100	100	100	
42	12	61	76	100	100	100	70	87	100	100	100				42	12	44	55	77	99	100	51	64	89	100	100	100	
48	12	53	66	93	100	100	61	76	100	100	100	54	68	95	100	48	12		67	87	100	44	56	78	100	100		
54	12		59	83	100	100	54	68	95	100	100	48	60	85	100	54	18		54	71	88	39	50	69	93	100		
60	12			74	97	100	49	61	86	100	100	43	54	76	98	60	18			57	72	35	45	62	83	98		
66	12				87	100	44	55	78	100	100	39	49	69	89	66	18				58	32	40	56	76	89		
72	12				80	97	40	51	71	92	100	36	45	63	82	72	18				45	30	37	55	70	82		
78	12					87	37	47	66	85	100	33	42	58	75	78	24					34	48	64	75			
84	12					75	35	43	61	78	96	31	39	54	70	84	24						44	59	70			
90	12						32	40	57	73	90	29	36	51	65	90	24						41	62	65			
96	12							38	53	69	84		34	48	61	96	24						38	51	61			
102	18							36	50	65	79		32	45	57	102	24							46	55			
108	18								47	61	75			42	54	108	24							42	50			
114	18								45	58	71			40	52	114	24							45				
120	18								43	55	67			38	49	120	24								40			
126	18									52	64				47													
132	18									50	61				44													
138	18									48	58				42													
144	18									56					50													

**NOTE:**

- When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
- Fill heights exceeding 100 feet require special analysis by the CO.
- The fill heights in the table are for helical lockseam and welded seam pipe only. Fill heights for culvert pipe with annular corrugations are more restrictive than those of helical lockseam and welded seam pipe. Obtain approval before furnishing annular corrugation pipe.
- Measure minimum cover from the top of the pipe culvert to the subgrade for flexible pavements, and to the top of the pavement for rigid pavements. Measure maximum fill height from the top of the pipe to the top of the pavement for both flexible and rigid pavement.

### METAL PIPE ARCH CULVERT

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL										ALUMINUM																											
PIPE ARCH SIZE SPAN x RISE INCHES	EQUI-VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2 2/3" x 1/2" CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS				PIPE ARCH SIZE SPAN x RISE INCHES	EQUI-VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2 2/3" x 1/2" CORRUGATIONS					3" x 1" CORRUGATIONS										
				METAL THICKNESS (INCH/GAGE)																																	
				MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)																																	
17 x 13	15	3	12	13																	17 x 13	15	3	12	13												
21 x 15	18	3	12	12																		21 x 15	18	3	12	12											
24 x 18	21	3	12	13																		24 x 18	21	3	12	13											
28 x 20	24	3	12	13																		28 x 20	24	3	12		13										
35 x 24	30	3	12	12																		35 x 24	30	3	12		12										
42 x 29	36	3.5	12	12																		42 x 29	36	3.5	15			12									
49 x 33	42	4	12				12															49 x 33	42	4	15			12									
57 x 38	48	5	12					12														57 x 38	48	5	15				12								
60 x 46	54	8	15									21										60 x 46	54	8	15					21							
64 x 43	54	6	12				12															64 x 43	54	6	18			12									
66 x 51	60	9	15									21										66 x 51	60	9	18					21							
71 x 47	60	7	12				12															71 x 47	60	7	18												
73 x 55	66	12	18									20										73 x 55	66	12	18												
77 x 52	66	8	12						12													77 x 52	66	8	12												
81 x 59	72	14	18									17										81 x 59	72	14	18												
83 x 57	72	9	12									12										83 x 57	72	9	12												
87 x 63	78	14	18																			87 x 63	78	14	18												
95 x 67	84	16	18																			95 x 67	84	16	18												
103 x 71	90	16	18																			103 x 71	90	16	18												
112 x 75	96	18	21																			112 x 75	96	18	21												
117 x 79	102	18	21																			117 x 79	102	18	21												
128 x 83	108	18	24																			128 x 83	108	18	24												
137 x 87	114	18	24																			137 x 87	114	18	24												
142 x 91	120	18	24																			142 x 91	120	18	24												

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 FEDERAL LANDS HIGHWAY  
 U.S. CUSTOMARY STANDARD  
**METAL PIPE CULVERT**

STANDARD APPROVED FOR USE 12/1993  
 REVISED: 4/1994 6/2005  
 STANDARD 602-1

NO SCALE