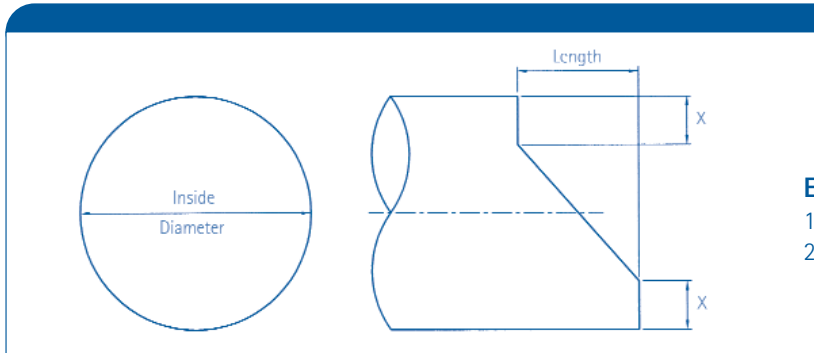


# Multi-Plate® Shapes

## Multi-Plate Circular Pipe



### End Treatment

1. Square ends
2. Bevelled ends\* with top and bottom steps

### Plates Per Ring & Weight Per Metre of Multi-Plate Circular Pipe

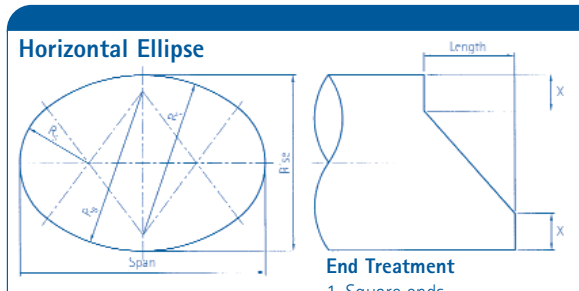
Standard Inside Diam. (mm)	Periphery (Hole Spaces) "N"	End Area (m <sup>2</sup> )	No. of Plates/Ring (For Standard Layout)				Nominal Weight of Structure (kg/m) Bolts incl.				
			5N	6N	9N	Total	Specified Steel Thickness (mm)				
							3.0	4.0	5.0	6.0	7.0
1500	20N	1.77	4	0	0	4	180	234	288	342	396
1660	22N	2.16	2	2	0	4	195	254	313	373	432
1810	24N	2.58	0	4	0	4	211	275	339	403	467
1970	26N	3.04	4	1	0	5	232	302	373	443	513
2120	28N	3.54	2	3	0	5	248	323	398	473	548
2280	30N	4.07	0	2	2	4	257	335	415	494	572
2430	32N	4.65	1	0	3	4	272	356	440	524	608
2590	34N	5.26	2	1	2	5	294	384	474	564	654
2740	36N	5.91	0	0	4	4	303	396	490	584	678
3050	40N	7.32	2	2	2	6	346	452	559	665	771
3360	44N	8.89	1	2	3	6	377	493	609	725	841
3670	48N	10.61	0	2	4	6	408	534	660	786	911
3990	52N	12.47	2	1	4	7	445	582	719	856	993
4300	56N	14.49	1	1	5	7	476	623	770	916	1063
4610	60N	16.66	0	1	6	7	507	663	820	977	1134
4920	64N	18.99	2	0	6	8	544	711	880	1047	1215
5230	68N	21.46	1	0	7	8	575	752	930	1108	1285
5540	72N	24.08	0	0	8	8		793	981	1168	1356
5850	76N	26.86	2	2	6	10		849	1049	1249	1449
6160	80N	29.79	1	2	7	10			1100	1309	1519
6470	84N	32.87	0	2	8	10			1150	1370	1589
6780	88N	36.10	2	1	8	11			1210	1440	1671
7090	92N	39.48	1	1	9	11				1501	1741
7400	96N	43.01	0	1	10	11				1561	1812
7710	100N	46.70	2	0	10	12					1893
8020	104N	50.53	1	0	11	12					1963

Note: Weights based on 3660mm plate lengths. All weights include bolts and nuts. All dimensions are to inside of the crest of the corrugation and all figures shown are subject to manufacturing tolerances as per CSA G 401. 5N, 6N and 9N designate number of hole spaces in plate.

\*Length of bevel is equal to 3050mm, 3660mm or any combination of these plates. On smaller structures, 1/2 of 3050 or 3660 metres may be used. Contact your nearest Armttec sales office for information on tie-backs for long bevels.

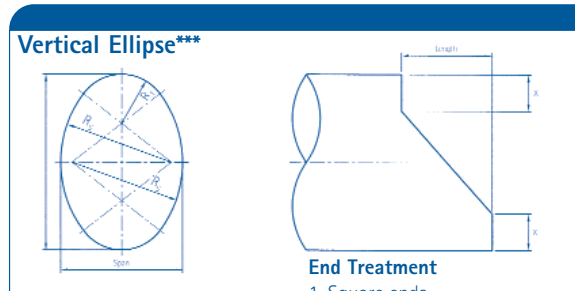


# Multi-Plate Ellipses



**End Treatment**

1. Square ends
2. Bevelled ends\* with top and bottom steps



**End Treatment**

1. Square ends
2. Bevelled ends\* with top and bottom steps

## Dimensions, Plates Per Ring and Weight Per Metre of Multi-Plate Horizontal Ellipse

Series Number	Span Inside (mm)	Rise Inside (mm)	Total "N"	End Area (m <sup>2</sup> )	No. of Plates/Ring**						Nominal Weight of Structure (kg/m) Bolts incl. Specified Steel Thickness					
					5N		6N		9N		Total	3.0	4.0	5.0	6.0	7.0
					TB	S	TB	S	TB	S						
27E15	2470	1750	28N	3.34	0	2	0	0	2	0	4	242	316	391	464	539
30E15	2690	1840	30N	3.81	4	2	0	0	0	0	6	270	352	434	514	597
33E15	2920	1920	32N	4.37	2	2	2	0	0	0	6	285	372	459	545	633
30E18	2790	2050	32N	4.48	4	0	0	2	0	0	6	285	372	459	545	633
36E15	3140	2000	34N	4.83	0	2	4	0	0	0	6	301	393	485	576	668
33E18	3020	2130	34N	5.02	2	0	2	2	0	0	6	301	393	485	576	668
36E18	3240	2210	36N	5.57	0	0	4	2	0	0	6	317	413	510	607	703
42E15	3590	2160	38N	5.96	2	2	0	0	2	0	6	331	431	532	633	734
45E15	3820	2240	40N	6.55	0	2	2	0	2	0	6	347	454	561	667	773
42E18	3690	2380	40N	6.78	2	0	0	2	2	0	6	347	454	561	667	773
45E18	3920	2460	42N	7.43	0	0	2	2	2	0	6	363	474	586	698	809
48E18	4140	2540	44N	8.08	4	0	2	2	0	0	8	391	510	629	747	867
51E18	4370	2620	46N	8.78	2	0	4	2	0	0	8	405	529	652	777	900
42E27	3990	3020	46N	9.48	2	0	0	0	2	2	6	394	514	637	757	879
54E18	4590	2700	48N	9.50	0	0	6	2	0	0	8	407	533	659	787	913
45E27	4220	3100	48N	10.22	0	0	2	0	2	2	6	409	535	662	789	914
48E27	4440	3180	50N	11.06	4	0	2	0	0	2	8	437	571	705	838	972
51E27	4660	3260	52N	11.89	2	0	4	0	0	2	8	450	590	729	867	1006
54E27	4890	3350	54N	12.72	0	0	6	0	0	2	8	452	593	735	877	1018
57E27	5110	3430	56N	13.61	4	0	0	0	2	2	8		629	777	926	1074
51E33	4860	3690	56N	14.03	2	2	4	2	0	0	10	495	647	798	945	1098
60E27	5340	3510	58N	14.49	2	0	2	0	2	2	8		651	805	958	1111
54E33	5090	3770	58N	15.02	0	2	6	2	0	0	10		651	805	958	1111
63E27	5560	3590	60N	15.42	0	0	4	0	2	2	8		671	831	989	1146
57E33	5310	3860	60N	16.00	4	2	0	2	2	0	10		686	845	1006	1165
66E27	5790	3670	62N	16.44	4	0	4	0	0	2	10			873	1038	1204
60E33	5540	3940	62N	17.00	2	2	2	2	2	0	10		707	873	1038	1204
69E27	6010	3750	64N	17.39	2	0	0	0	4	2	8			878	1047	1216
63E33	5760	4020	64N	18.04	0	2	4	2	2	0	10			897	1069	1240
72E27	6240	3840	66N	18.40	0	0	2	0	4	2	8			904	1079	1253
66E33	5990	4100	66N	19.09	4	2	4	2	0	0	12			940	1118	1295
75E27	6460	3920	68N	19.44	4	0	2	0	2	2	10			947	1128	1308
69E33	6210	4180	68N	20.17	2	2	0	2	4	0	10			947	1128	1308

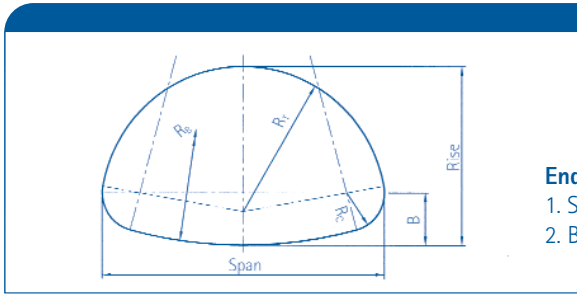
See notes for Circular Pipe

\*Refer to the Multi-Plate brochure regarding length of bevels

\*\* TB refers to number of 5N, 6N and 9N plates for the top and bottom arcs  
S refers to the number of 5N, 6N and 9N plates for two sided arcs

\*\*\*A full range of vertical ellipse shapes with spans from 1.4m to more than 6m are available.  
Contact your nearest Armtec sales office for more information.

# Multi-Plate Pipe Arches



## End Treatment

1. Square ends
2. Bevelled ends\*\*

## Dimensions\*, Plates Per Ring and Weight Per Metre of Multi-Plate Pipe Arches

Nominal Inside Dimensions		Periphery in # of Hole Spaces	End Area (m <sup>2</sup> )	No. of Plates/Ring* (For Standard Layouts)				Nominal Weight of Structure (kg/m) Bolts Incl.				
Span (mm)	Rise (mm)			5N TCB	6N TCB	9N TCB	Total	Specified Steel Thickness (mm)				
				3.0	4.0	5.0	6.0	7.0				
2060	1520	24N	2.49	021	000	100	4	210	274	339	403	467
2240	1630	26N	2.90	121	100	000	5	232	302	373	443	513
2440	1750	28N	3.36	020	201	000	5	248	323	398	473	548
2590	1880	30N	3.87	120	001	100	5	263	343	423	503	583
2690	2080	32N	4.49	220	101	000	6	285	371	458	544	630
3100	1980	34N	4.83	020	100	101	5	294	384	474	564	654
3400	2010	36N	5.28	021	101	100	6	316	412	508	604	700
3730	2290	40N	6.61	020	002	200	6	346	452	559	665	771
3890	2690	44N	8.29	121	001	200	7	384	501	618	735	852
4370	2870	48N	9.76	021	100	201	7	414	541	669	795	922
4720	3070	52N	11.38	020	001	301	7	445	582	719	856	993
5050	3330	56N	13.24	022	201	200	9		638	787	936	1085
5490	3530	60N	15.10	120	000	302	8			829	987	1145
5890	3710	64N	17.07	221	101	201	10			897	1067	1237
6250	3910	68N	19.18	220	002	301	10			948	1128	1308

See notes for Circular Pipe \*T refers to number of 5N, 6N and 9N plates for top arc. C refers to number of 5N, 6N and 9N plates for two corner arcs. B refers to number of 5N, 6N and 9N plates for bottom arc. \*\* Refer to the Multi-Plate brochure for details of the bevelled ends.

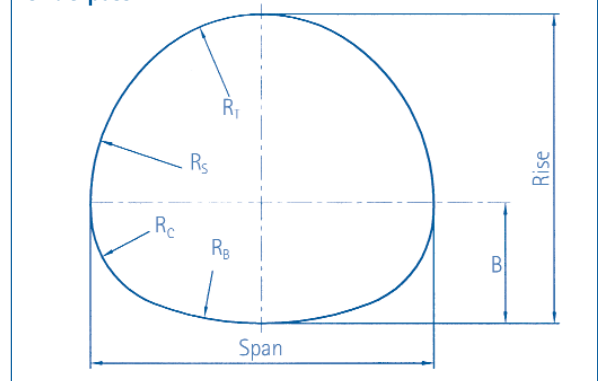
\* Dimensions are based on historical practices in the industry.

As Armtec provides plates curved to hard metric radii, minor differences should be expected. Your Armtec Sales Engineer has more information, if required.

## Dimensions and Total Plates for Multi-Plate Underpasses

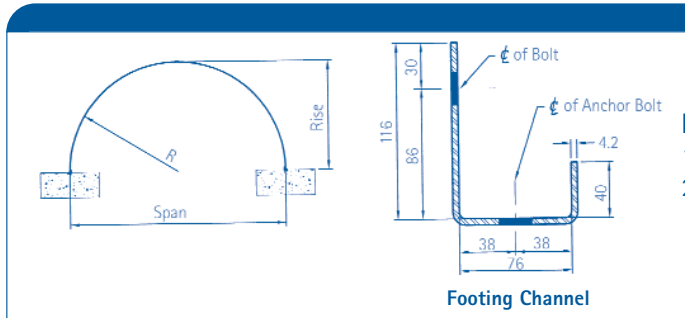
Dimensions		Hole Spaces "N"	End Area (m <sup>2</sup> )	Total Plates
Span	Rise			
3750	3340	47	10.0	7
3880	3520	49	10.8	8
3980	3700	51	11.8	8
4060	3900	53	12.8	8
4110	3980	54	13.3	8
4200	4060	55	13.7	8
4510	4090	57	14.7	8
4660	4220	59	15.8	10
4730	4380	61	16.7	11
4820	4580	63	17.9	11
4990	4710	65	19.0	10
5110	4820	67	20.2	11
5250	4840	68	20.8	11
5380	5130	70	22.3	11
5500	5240	72	23.3	12
5790	5310	74	24.9	12
5950	5430	76	26.2	12
6090	5590	78	27.5	11
6280	5690	80	29.0	12

## Underpass



Note: For additional information on underpasses, contact your nearest Armtec sales office.

# Multi-Plate Arches



## End Treatment

1. Square ends
2. Bevelled ends are not recommended. If for special cases, bevelled ends must be used (eg. pedestrian underpasses), they must be installed with tie-backs and/or reinforcing collars.

## Dimensions, Plates Per Ring and Weight Per Metre of Multi-Plate Arches

Nominal Dimensions		Periphery in # of Hole Spaces "N"	Water Way Area (m <sup>2</sup> )	Radius (mm)	No. of Plates/Ring (For Standard Layouts)				Nominal Weight of Structure (kg/m)** Bolts Incl.				
Span (mm)	Rise (mm)				5N	6N	9N	Total	Specified Steel Thickness (mm)				
								3.0	4.0	5.0	6.0	7.0	
1520	810	10N	0.98	760	2			2	87	114	141	168	195
1830	840	11N	1.16	930	1	1		2	95	124	154	183	213
	970	12N	1.39	910		2		2	102	134	166	198	230
2130	860	12N	1.39	1090		2		2	102	134	166	198	230
	1120	14N	1.86	1070	1		1	2	118	155	192	229	266
2440	1020	14N	1.86	1230	1		1	2	118	155	192	229	266
	1270	16N	2.42	1220	2	1		3	139	183	226	269	312
2740	1180	16N	2.46	1400	2	1		3	139	183	226	269	312
	1440	18N	3.07	1370			2	2	148	195	242	289	336
3050	1350	18N	3.16	1540			2	2	148	195	242	289	336
	1600	20N	3.81	1520	1	1	1	3	170	223	276	329	382
3350	1360	19N	3.44	1710	2		1	3	163	213	264	314	365
	1750	22N	4.65	1680	2	2		4	192	251	310	370	429
3660	1520	21N	4.18	1850		2	1	3	178	233	289	344	400
	1910	24N	5.48	1830		1	2	3	201	264	327	390	453
3960	1680	23N	5.02	2010	1	3		4	203	264	326	388	449
	2060	26N	6.50	1980	1	2	1	4	223	292	361	430	499
4270	1840	25N	5.95	2160	2	1	1	4	215	282	348	415	481
	2210	28N	7.43	2130	2		2	4	238	312	386	460	534
4570	1870	26N	6.41	2340	1	2	1	4	223	292	361	430	499
	2360	30N	8.55	2290		2	2	4	254	332	412	491	569
4880	2030	28N	7.43	2480	2		2	4	238	312	386	460	534
	2520	32N	9.75	2440	1		3	4		353	437	521	605
5180	2180	30N	8.55	2620		2	2	4		332	412	491	569
	2690	34N	11.06	2590	2	1	2	5		381	471	561	654
5490	2210	31N	9.01	2820	2	2	1	5		350	433	516	598
	2720	35N	11.71	2740	1	2	2	5		391	484	576	669
5790	2360	33N	10.22	2950		1	3	4			450	536	622
	2880	37N	13.01	2900	2		3	5			509	606	704
6100	2530	35N	11.52	3100	1	2	2	5			484	576	669
	3050	39N	14.59	3050		2	3	5			534	637	739

See notes for Circular Pipe



**Head Office:** 15 Campbell Road, P.O. Box 3000, Guelph, ON N1H 6P2 [www.armtec.com](http://www.armtec.com)

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