

TECHNICAL NOTE

Dual Wall HDPE Perforation Patterns

TN 1.01
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Introduction

Perforated pipe plays an integral role in many applications of HDPE pipe. Generally, perforated pipe is used to accelerate the removal of subsurface water in soils or to allow storm water to percolate into the soil. Currently, two classifications of perforations are specified in the AASHTO material specifications for HDPE pipe: Class I, and Class II. Class I perforations are commonly used in combination storm/underdrain systems while Class II incorporates subsurface drainage and detention/retention systems. Both classes are explained in more detail in the AASHTO materials specifications (M294 and M252). AASHTO M252 covers pipe diameters 3- through 10-inch (75 - 250 mm) while M294 covers 12-inch through 60-inch (300 - 1500 mm).

Standard Perforation Patterns

AASHTO Class II Perforation

The following terminology for perforations is derived from the applicable AASHTO specification. Differences between the specifications are covered in the table below. Class II perforations shall be located in the outside valleys of the corrugations, be circular and/or slotted and evenly spaced around the circumference and length of the pipe. The perforations shall be located in the outside valleys of the corrugations. The water inlet area shall be no less than 0.945 in²/ft (20 cm²/m) for pipe diameters 4- through 10-inch (100 - 250mm), 1.42 in²/ft (30 cm²/m) for pipe diameters 12- through 18-inch (300 - 450 mm) and 1.89 in²/ft (40 cm²/m) for pipe diameters larger than and equal to 24 inches (600 mm). Table 1 below represents ADS standard perforation patterns for AASHTO Class II. Patterns indicated with an asterisk are a made to order product and should allow for additional lead-time when ordering.

Nominal I.D.		Perforation Type	Maximum Slot Length or Diameter		Maximum Slot Width		Minimum Inlet Area	
in	mm		in	mm	in	mm	in ² /ft	cm ² /m
*4	100	Slot	0.875	22	0.125	3	1.0	21
*6	150	Slot	0.875	22	0.125	3	1.0	21
*8	200	Slot	1.18	30	0.125	3	1.0	21
*10	250	Slot	1.18	30	0.125	3	1.0	21
12	300	Circular	0.313	8	-	-	1.5	32
15	375	Circular	0.313	8	-	-	1.5	32
18	450	Circular	0.313	8	-	-	1.5	32
24	600	Circular	0.313	8	-	-	2.0	42
30	750	Circular	0.375	9.5	-	-	2.0	42
36	900	Circular	0.375	9.5	-	-	2.0	42
42	1050	Circular	0.375	9.5	-	-	2.0	42
48	1200	Circular	0.375	9.5	-	-	2.0	42
54	1350	Circular	0.375	9.5	-	-	2.0	42
60	1500	Circular	0.375	9.5	-	-	2.0	42

* Denotes perforation pattern made to order

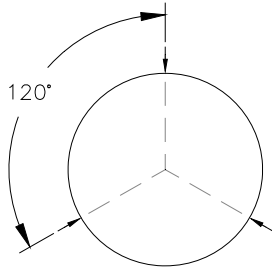


Figure 1

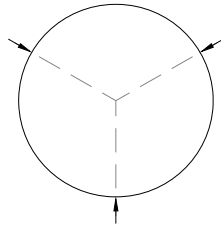
AASHTO Class II Perforation Patterns

Note: Actual pattern may vary by region, however all patterns meet the AASHTO and ASTM minimum requirements for the open inlet area.

4" – 10"
PIPE DIAMETERS

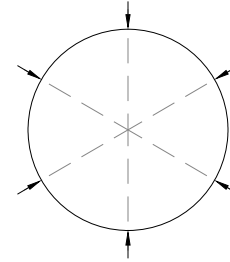


3 AT 120°



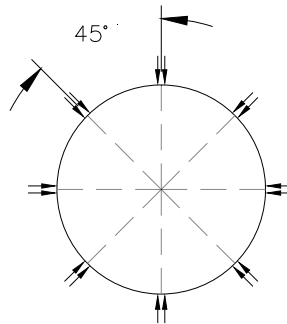
ROTATED
EVERY VALLEY

12" – 30"
PIPE DIAMETERS



** NUMBER OF HOLES AROUND
CIRCUMFERENCE VARIES BASED ON
DIAMETER AND REGION **

36" – 60"
PIPE DIAMETERS



2 AT EVERY 45°



AASHTO Class I Perforation

The following terminology is derived from the applicable AASHTO specification. ADS manufactures 12- through 24-inch (300 – 600 mm) Class I perforation as a standard product (ADS designation 'C' perforation), however, other sizes may be ordered as a made to order with sufficient lead time. Please contact your local ADS representative when ordering 30- through 60-inch Class 1 perforated pipe. The perforations shall be approximately circular and arranged in rows parallel to the axis of the pipe. The locations of the perforations shall be in the valley of the outside corrugation and also in each corrugation. The perforations shall be arranged in two equal groups placed symmetrically on either side of the lower half of the pipe. Please note that certain perforation patterns are not available in various parts of the United States. **Please contact your local ADS representative for availability and ordering of Class I perforations.**

Nominal I.D.		Min. No. of Rows of Perforations	Maximum Perforation Hole Diameter		Minimum Perforation Hole Diameter		"H" Maximum		"L" Minimum		Nominal Inlet Area	
in	mm		in	mm	in	mm	in	mm	in	mm	in ² /ft	cm ² /m
12	300	6	0.40	10	0.20	5	5.4	138	7.6	192	2.65	56
15	375	6	0.40	10	0.20	5	7.2	184	10.1	256	1.97	42
18	450	6	0.40	10	0.20	5	8.1	207	11.3	288	1.90	40
24	600	8	0.40	10	0.20	5	10.9	276	15.1	384	2.15	46
*30	750	8	0.40	10	0.20	5	13.6	345	18.9	480	1.65	35
*36	900	8	0.40	10	0.20	5	16.3	414	22.7	576	1.32	28
*42	1050	8	0.40	10	0.20	5	19.0	483	26.5	672	1.31	28
*48	1200	8	0.40	10	0.20	5	21.7	552	30.2	768	1.29	27
*60	1500	8	0.40	10	0.20	5	27.2	690	37.8	960	1.70	36

* Denotes perforation pattern made to order

Figure 2
AASHTO Class I Perforation Patterns

