



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. The Class II perforation pattern comes standard when perforated pipe is ordered. Class One perforated pipe has limited availability. Please check with a local representative to determine availability. 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.

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

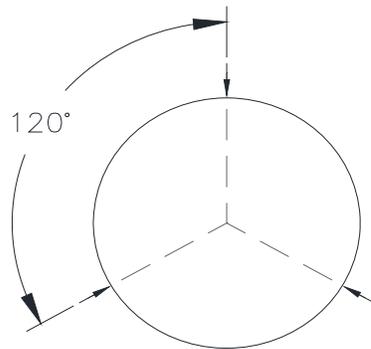


Figure 1

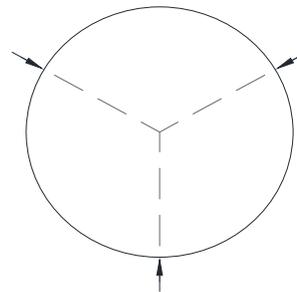
AASHTO Class II Perforation Patterns

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

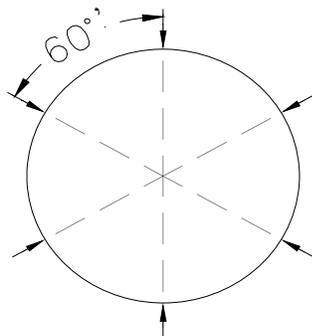


3 AT 120°

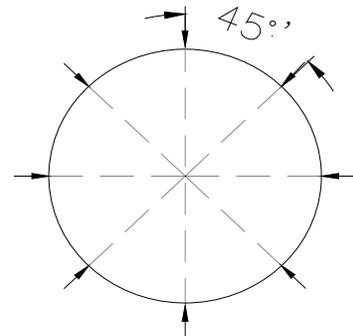


ROTATED
EVERY VALLEY

12" – 18"
PIPE DIAMETERS

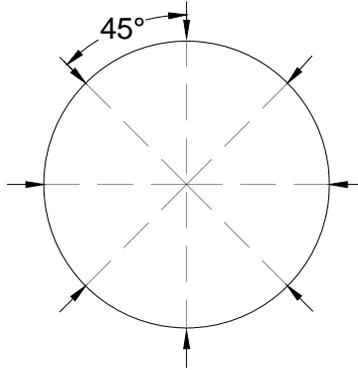


** NUMBER OF HOLES AROUND CIRCUMFERENCE VARIES BASED ON DIAMETER AND REGION **

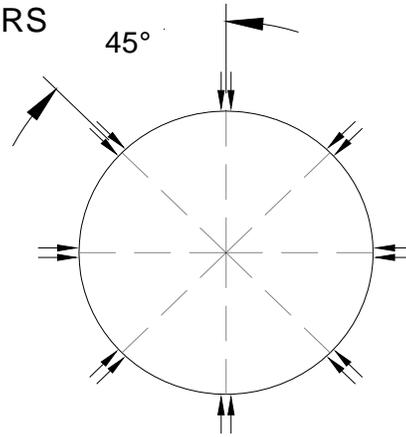
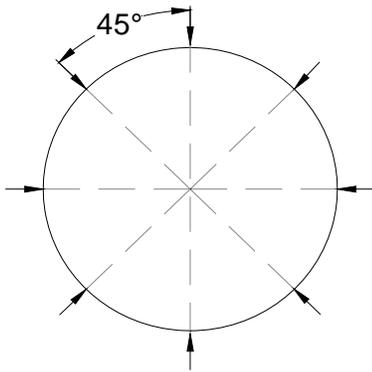


** NUMBER OF HOLES AROUND CIRCUMFERENCE VARIES BASED ON DIAMETER AND REGION **

24"
PIPE DIAMETERS

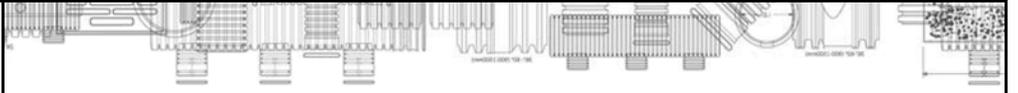


30"
PIPE DIAMETERS

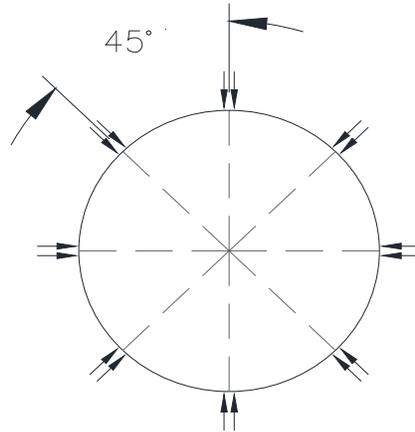


2 AT EVERY 45°

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



36" – 60"
PIPE DIAMETERS



2 AT EVERY 45°



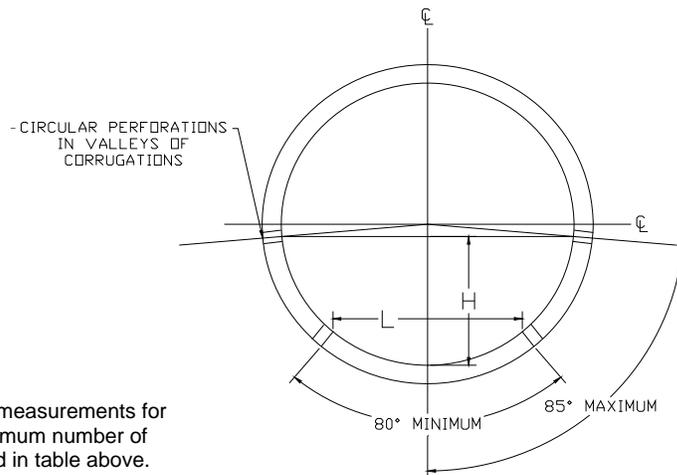
AASHTO Class I Perforation

Please contact your local ADS representative before specifying or ordering pipe with a Class I perforation pattern to verify its availability. The following terminology is derived from the applicable AASHTO specification. 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 of every corrugation. The perforations shall be arranged in two equal groups placed symmetrically on either side of the lower half of the pipe. Diameters 4"-10" are not available in Class I patterns, however your local ADS representative may be contacted to verify whether your custom pattern can be provided.

Nominal I.D.		Min. No. of Rows of Perforations	Maximum Perforation Hole Diameter		Minimum Perforation Hole Diameter		"H" Maximum		"L" Minimum		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	5.5	138	7.6	192	1.2	24.3
15	375	6	0.40	10	0.20	5	6.8	172	9.5	240	0.9	18.4
18	450	6	0.40	10	0.20	5	8.2	207	11.4	288	0.8	16.0
24	600	8	0.40	10	0.20	5	10.9	276	15.2	384	0.9	19.2
30	750	8	0.40	10	0.20	5	13.6	345	18.9	480	0.7	13.8
36	900	8	0.40	10	0.20	5	16.3	414	22.7	576	0.6	11.7
42	1050	8	0.40	10	0.20	5	19.0	483	26.5	672	0.6	12.8
48	1200	8	0.40	10	0.20	5	21.8	552	30.3	768	0.6	12.0
60	1500	8	0.40	10	0.20	5	27.2	690	37.8	960	0.5	10.1

*No minimum Inlet Area requirements from AASHTO M294. Value based on required minimum perforation hole diameter and the minimum number of perforation rows per AASHTO M294.

Figure 2
AASHTO Class I Perforation Patterns



NOTE: Diagram illustrates measurements for values of "H" and "L" – minimum number of rows of perforations is listed in table above.

FOR 12"-60" (300-1500mm)
PIPE PER AASHTO M294