

Product Notes

Product Note 3.107

Re: Specification for Smooth Interior Corrugated Polyethylene Pipe

Date: January 2005



This specification applies to high density polyethylene corrugated pipe with an integrally formed smooth waterway. Nominal sizes for which this specification is acceptable are 100 – 1500 mm (4 - 60 inch) diameters. Sizes 100 – 1500 mm (4 - 60 inch) shall be either AASHTO Type 'S' or Type 'D' as follows. Sizes 100 – 1500 mm (4 - 60 inch) designated as AASHTO Type 'S' (N-12) shall have a full circular cross-section, with an outer corrugated pipe wall and an essentially smooth inner wall (waterway). Corrugations for Type 'S' sizes 100 – 1500 mm (4 - 60 inch) shall be annular (N-12). Sizes 1050 – 1500 mm (42 thru 60 inch) designated as AASHTO Type 'D' (N-12HC) shall consist of an essentially smooth waterway braced circumferentially with circular ribs which are formed simultaneously with an essentially smooth outer wall. The 1050 – 1500 mm (42 thru 60 inch) (N-12HC) sizes shall conform to AASHTO Type 'D' (which describes dual wall pipe with a smooth waterway).

Pipe manufactured for this specification shall comply with the requirements for test methods, dimensions and markings found in AASHTO Designations M252, and M294. Pipe and fittings shall be made from virgin PE compounds which conform with the applicable current edition of the AASHTO Material Specifications for cell classification as defined and described in ASTM D3350.

The minimum parallel plate stiffness values when tested in accordance with ASTM D2412 shall be as follows:

Diameter (nominal)	Pipe Stiffness (minimum)	Diameter (nominal)	Pipe Stiffness (minimum)
100 mm (4")	340 kN/m ² (50 pii)	600 mm (24")	235 kN/m ² (34 pii)
150 mm (6")	340 kN/m ² (50 pii)	750 mm (30")	195 kN/m ² (28 pii)
200 mm (8")	340 kN/m ² (50 pii)	900 mm (36")	150 kN/m ² (22 pii)
250 mm (10")	340 kN/m ² (50 pii)	1050 mm (42")	140 kN/m ² (20 pii)
300 mm (12")	345 kN/m ² (50 pii)	1200 mm (48")	125 kN/m ² (18 pii)
375 mm (15")	290 kN/m ² (42 pii)	1500 mm (60")	95 kN/m ² (14 pii)
450 mm (18")	275 kN/m ² (40 pii)		

The fittings shall not reduce or impair the overall integrity or function of the pipeline. Fittings may be either molded or fabricated. Common corrugated fittings include in-line joint fittings, such as couplers and reducers, and branch or complimentary assembly fittings such as tees, wyes and end caps. These fittings may be installed by various methods such as snap-on, bell and spigot, bell – bell and wrap around couplers. Couplers shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Only fittings supplied or recommended by the manufacturer shall be used. Where designated on the plans or project specifications, an elastomeric gasket meeting the requirements of ASTM F477 shall be supplied.

Installation of the pipe specified above shall be in accordance with either AASHTO Section 30 or ASTM Recommended Practice D2321 as described elsewhere in these specifications and as recommended by the manufacturer.

ADS N-12 PRODUCT INFORMATION SHEET

Nominal Diameter	Inside Diameter, Average	Outside Diameter, Average	Inner Liner Thickness, Minimum	Minimum Pipe Stiffness @ 5% Deflection	Weight kg./6m (lbs./20 ft.)	Area mm ² /mm	"I" cm ⁴ /cm	"C" mm
100 mm (4")	104 mm (4.10")	120 mm (4.78")	0.5 mm (0.020")	340 kN/m ² 50 psi	4.08 kg (9.00 lbs)	1.59 (0.063 in ² /in)	0.010 (0.0006 in ⁴ /in)	3.06 (0.12 in)
150 mm (6")	152 mm (6.00")	176 mm (6.92")	0.5 mm (0.020")	340 kN/m ² 50 psi	7.71 kg (17.00 lbs)	2.15 (0.085 in ² /in)	0.035 (0.0021 in ⁴ /in)	4.94 (0.19 in)
200 mm (8")	200 mm (7.90")	233 mm (9.11")	0.6 mm (0.024")	340 kN/m ² 50 psi	13.97 kg (30.80 lbs)	2.75 (0.108 in ² /in)	0.078 (0.005 in ⁴ /in)	6.36 (0.25 in)
250 mm (10")	251 mm (9.90")	287 mm (11.36")	0.6 mm (0.024")	340 kN/m ² 50 psi	20.96 kg (46.20 lbs)	3.48 (0.137 in ² /in)	0.134 (0.008 in ⁴ /in)	7.58 (0.30 in)
300 mm (12")	308 mm (12.15")	367 mm (14.45")	0.9 mm (0.035")	345 kN/m ² 50 psi	29.60 kg (65.20 lbs)	5.50 (0.217 in ² /in)	0.574 (0.035 in ⁴ /in)	10.92 (0.43 in)
375 mm (15")	380 mm (14.98")	448 mm (17.57")	1.0 mm (0.039")	290 kN/m ² 42 psi	42.00 kg (92.50 lbs)	6.91 (0.272 in ² /in)	0.901 (0.055 in ⁴ /in)	13.21 (0.52 in)
450 mm (18")	459 mm (18.07")	536 mm (21.20")	1.3 mm (0.051")	275 kN/m ² 40 psi	58.38 kg (128.60 lbs)	6.93 (0.273 in ² /in)	1.327 (0.081 in ⁴ /in)	14.48 (0.57 in)
600 mm (24")	612 mm (24.08")	719 mm (27.80")	1.5 mm (0.059")	235 kN/m ² 34 psi	99.93 kg (220.30 lbs)	8.23 (0.324 in ² /in)	2.245 (0.137 in ⁴ /in)	18.80 (0.74 in)
750 mm (30")	762 mm (30.00")	892 mm (35.10")	1.5 mm (0.059")	195 kN/m ² 28 psi	140.00 kg (308.6 lbs)	9.60 (0.378 in ² /in)	4.539 (0.277 in ⁴ /in)	21.84 (0.86 in)
900 mm (36")	914 mm (36.00")	1059 mm (41.70")	1.7 mm (0.067")	150 kN/m ² 22 psi	180.00 kg (396.8 lbs)	10.19 (0.401 in ² /in)	6.555 (0.400 in ⁴ /in)	25.40 (1.00 in)
1050 mm (42") Type S	1054 mm (41.40")	1212 mm (47.70")	1.8 mm (0.070")	140 kN/m ² 20 psi	230.00 kg (570.10 lbs)	11.64 (0.458 in ² /in)	9.373 (0.572 in ⁴ /in)	30.73 (1.21 in)
1050 mm (42") Type D	1054 mm (41.50")	1187 mm (46.75")	1.8 mm (0.070")	140 kN/m ² 20 psi	269.76 kg (594.70 lbs)	14.86 (0.585 in ² /in)	9.685 (0.591 in ⁴ /in)	35.31 (1.39 in)
1200 mm (48") Type S	1209 mm (47.60")	1361 mm (53.60")	1.8 mm (0.070")	125 kN/m ² 18 psi	283.50 kg (625.00 lbs)	12.58 (0.495 in ² /in)	9.341 (0.570 in ⁴ /in)	29.72 (1.17 in)
1200 mm (48") Type D	1208 mm (47.55")	1339 mm (52.70")	1.8 mm (0.070")	125 kN/m ² 18 psi	309.72 kg (682.80 lbs)	14.76 (0.581 in ² /in)	10.090 (0.616 in ⁴ /in)	33.02 (1.30 in)
1500 mm (60") Type S	1512 mm (59.5")	1684 mm (66.3")	1.8 mm (0.070")	95 kN/m ² 14 psi	410.00 kg (903.90 lbs)	14.68 (0.578 in ² /in)	14.09 (0.860 in ⁴ /in)	33.66 (1.32 in)
1500 mm (60") Type D	1514 mm (59.6")	1664 mm (65.5")	1.8 mm (0.070")	95 kN/m ² 14 psi	509.53 kg (1123.30 lbs)	17.15 (0.675 in ² /in)	13.305 (0.812 in ⁴ /in)	36.32 (1.43 in)