

Scope

This specification designates the requirements for 4- through 60-inch I.D. Prinsco ECOFLO® 100 pipe for use in gravity-flow drainage applications.

Pipe Requirements

Prinsco ECOFLO 100 pipe shall have annular exterior corrugations with a smooth interior allowing for a Manning's "n" design value of 0.012 and shall meet the following standards:

- 4- through 10-inch shall meet AASHTO M252, Type S with the exception that the material formulation shall contain a minimum of 40% recycled polyethylene.
- 12- through 60-inch shall meet ASTM F2306 or AASHTO M294, Type S with the exception that the material formulation shall contain a minimum of 40% recycled polyethylene.

Materials

ECOFLO 100 pipe and fabricated fittings shall be manufactured using High Density Polyethylene (HDPE) meeting the minimum requirements of cell classification of 435420C or 424420E for 4- through 10- inch diameters 435400C or 435400E for 12- through 60-inch diameters, as defined and described in ASTM D3350 except the carbon black content shall be 2 - 4%. The finished product material formulation shall have an initial oxidation induction time of not less than 50 minutes when tested in accordance with ASTM D3895. The recycled content shall not be less than 40% post-consumer recycled HDPE, as defined by USGBC in LEED version 2.2 rating system.

The HDPE pipe material 12- through 60-inch shall be tested for slow crack growth resistance using the notched constant ligament-stress (NCLS) test as specified in sections 9.4 and 5.1 of AASHTO M294 and ASTM F2306, respectively. Average failure time of the five test specimens shall not be less than 32 hours.

Joint Performance

ECOFLO 100 pipe joints shall meet the requirements of AASHTO M252, M294, or ASTM F2306.

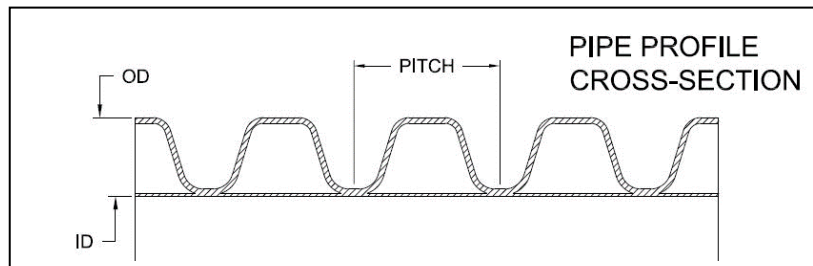
- Soil Tight Joints – ECOFLO 100 is available in plain end configuration and shall be joined with external couplers or coupling bands. Coupling methods shall be designed to positively engage with the external corrugations and shall meet the soil-tight requirements of paragraph 26.4.2.4 in Section 26 of the *AASHTO LRFD Bridge Construction Specifications*.
- Soil Tight Joints – ECOFLO 100 is available with gasketed integral bell and spigot type soil-tight joints. The integral joints shall meet the soil tight requirements of paragraph 26.4.2.4 in Section 26 of the *AASHTO LRFD Bridge Construction Specifications*. ECOFLO 100 soil-tight joints shall be assembled in accordance with the manufacturer's requirements to ensure installed joint performance.
- Watertight Joints – ECOFLO 100 is available with gasketed integral bell and spigot type watertight joints. The integral joints shall be watertight according to ASTM D3212. Gaskets shall meet the requirements of ASTM F477 and shall be installed by the manufacturer. An approved joint lubricant, available from the manufacturer, shall be applied to the bell and gasket during installation. ECOFLO 100 joints shall be assembled in accordance with the manufacturer's requirements to ensure installed watertight performance.

Fittings

Fittings shall meet the requirements of AASHTO M252, M294, or ASTM F2306, with the exception that recycled HDPE shall be used in the manufacture of the fittings as defined in the Materials section of this specification.

**Physical Pipe Dimensions**

Nominal ID (in)	Approximate OD (in)	Length (ft)	Corrugation Pitch (in)	Approximate Weight/foot (lb)	Min. Pipe Stiffness @ 5% Deflection (psi)
4"	4.8	20	.67	0.5	50
6"	7.1	20	.80	1.0	50
8"	9.5	20	1.00	1.7	50
10"	11.9	20	1.30	2.6	50
12"	14.5	10, 20	2.00	3.3	50
15"	17.7	10, 20	2.67	4.5	42
18"	21.5	10, 20	3.00	6.3	40
24"	28.2	10, 20	4.00	10	34
30"	34.7	12, 20	4.00	15	29
36"	40.6	12, 20	4.70	19	22.5
42"	47.5	12, 20	5.90	25	21
48"	54.2	12, 20	5.90	31	20
60"	66.8	12, 20	5.90	41	15

**Installation**

Pipe and fittings shall be installed in accordance with ASTM D2321 and Prinsco's published installation guidelines. Minimum cover heights for AASHTO H-25 loads shall be 12" for 4- through 48-inch diameter pipe and 18" for 60-inch pipe. The minimum cover shall be measured from the top of the pipe to the bottom of flexible pavement or to the top of rigid pavement. Contact your local Prinsco representative or visit www.prinsco.com for the latest installation guidelines.

Reference Specifications

This specification references the latest edition and revisions of the following standard specifications:

- AASHTO M252 – *Standard Specification for Corrugated Polyethylene Drainage Pipe*
- AASHTO M294 – *Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter*
- ASTM F2306 – *Standard Specification for 12 to 60-in. (300 to 1500 mm) Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications*
- ASTM F2648 – *Standard Specification for 2 to 60 inch [50 to 1500mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications*
- ASTM D3350 – *Standard Specification for Polyethylene Plastics Pipe and Fittings Materials*
- ASTM F477 – *Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe*
- ASTM D3212 – *Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals*
- ASTM D2321 – *Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications*