

Technical Note

TN 1.05 Pipe Joints & Gaskets

Introduction

ADS offers a full line of corrugated pipe products to fit the requirements of nearly any storm drain or gravity flow project and some sanitary sewer and low head pressure project specifications. With several products available to meet many project needs, the following outlines the product characteristics and typical uses of pipe used for storm drainage, sanitary sewer and irrigation to aid in the most efficient selection of an ADS product; specifications with additional information for each pipe product are also available. In some applications when corrosive effluent may be present in the pipe, the gasket material should also be evaluated and will be discussed in the following.

Pipe Products

Two base materials are currently used for ADS products: high density polyethylene (HDPE) and polypropylene (PP). The HDPE products will be black in color, while the PP products will be grey in color. Products used for mainline storm drainage and sanitary sewer will have a dual wall or triple wall profile. Figure 1 illustrates a cross section of the dual and triple wall profiles. Individual product specifications for all ADS pipe products are available in the Drainage Handbook Specifications section, which can be downloaded from www.ads-pipe.com or obtained from an ADS representative.

Figure 1
Dual Wall and Triple Wall Pipe Profiles



For all IB (integral bell) products, a gasketed integral bell and spigot joint, which maintains a constant outside diameter (OD) to avoid additional excavation for the bells, is utilized on 12" – 60" pipe; 4" through 10" pipe comes with a coupler installed by the manufacturer to eliminate the need for additional couplers, but is not manufactured on the pipe as with the IB connection. Products using the IB joint configuration include N-12[®] ST IB, N-12 WT IB, MEGA-GREEN[®], Sanitite[®], N-12 HP, SaniTite HP and Low Head pipe.

Gaskets

All ADS gaskets meet the requirements of ASTM F477, "Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe." There are two categories of gasket connections required to join ADS products: integral connections and field/fitting connections. Integral connections utilize the manufactured integral bell and spigot (IB) that was described in the preceding pipe product sections. Field couplers or fitting connections use a welded bell that is identifiably larger than the IB joint on unmodified pipe. To allow for easy field modification, a larger valley or saddle gasket must be used when inserting the pipe or fitting into a welded bell. Gaskets are available for soil-tight or watertight performance and should be selected with the aid of an ADS representative to ensure the correct gasket is ordered.

Chemical Resistance of Gaskets

Gasket material must be considered for projects where abnormal chemicals or abnormal concentrations of chemicals are present. Like other common storm water drainage pipe materials, ADS pipe products utilize polyisoprene rubber gaskets manufactured meeting the requirements of ASTM F477. In most cases, this gasket material is resistant to many of the common chemicals found in storm drainage applications. However, there are chemicals that may negatively affect the gasket material. For information on chemical resistance of elastomers commonly used as plastic pipe seals or gaskets, refer to ADS Technical Note 4.01 Chemical Resistance of Polyethylene and Elastomers or Technical Note 4.02 Chemical Resistance of Polypropylene and Elastomers.

Alternative Pipe Gasket Materials

Oil Resistant Gaskets

For applications where resistance to hydrocarbons (oil/gasoline) is important, nitrile rubber may be a suitable gasket material. Nitrile has good resistance to oil, solvent, and hydraulic fluid and has been used for many years in o-ring and hose products. It also demonstrates suitable material properties that make it a desirable material for pipe joints over other oil resistant materials. For projects where a lower level of hydrocarbon resistance may be required, neoprene gaskets may also be a suitable alternative.

EPDM (Ethylene-Propylene) Gaskets

EPDM may be used as a suitable pipe gasket material in environments where acids are present or when the gasket may be exposed to the sun for extended periods of time.

For applications where custom gaskets may be needed, please contact your local ADS representative for pricing and availability.

