Book 2: Chapter 1 - Introduction

Performance Pipe DriscoPlex™ polyethylene piping systems are used to transport gasses, liquids and slurries. These systems may operate under internal or external pressure, or both, and may be designed for buried, surface, above grade, underwater, or floating applications. Each system requires attention to the piping design characteristics of materials and products in accordance with application and installation requirements.

There are many different piping, materials available to the piping system designer - wood, concrete, steel, ductile iron, polyethylene, fiberglass, etc. Each material has its own advantages and disadvantages when considered for a particular application or installation.

Piping systems are best designed when the appropriate material and product characteristics are accommodated. Applying design methods for other piping materials to polyethylene piping systems may lead to unsatisfactory system performance. Polyethylene will behave just like polyethylene – not like steel, not like concrete, not like other commercial piping materials.

A piping system is an assembly of piping components - pipe, fittings, valves, pumps, and other appurtenances – all joined together to perform a particular function. So, component joining methods are crucial to the performance of the system as a whole.

- DriscoPlex™ polyethylene pipes are produced under two distinctly different manufacturing processes. These processes define the product and the applicable joining methods.
- DriscoPlex™ polyethylene piping products are designed for high performance, and easy, efficient joining both to themselves and to other piping system components.
- DriscoPlex™ polyethylene piping products have many characteristics that are common to polyethylene, and in some cases, specific to Performance Pipe products.

The second book of the Performance Pipe Engineering Manual, System Design, is intended as a guide for the piping system designer in the application of Performance Pipe DriscoPlex™ polyethylene piping products.

Performance Pipe Distributors, Sales, Customer Service and Technical personnel are available for guidance with specific design concerns.

DriscoPlex™ Outside Diameter (OD) Controlled Polyethylene Pipe

DriscoPlex™ OD Controlled polyethylene pipe is extruded using a process and specifications that control the pipe outside diameter and wall thickness.

The controlled outside diameter manufacturing process lends itself well to joining by heat fusion, which melts the joining surfaces and joins them, then cools them under pressure. When properly made, heat fusion joints are as strong and permanent as the pipe.

DriscoPlex™ polyethylene pipe and fittings for OD controlled PE pipe are primarily designed for internal pressure service, but provide excellent performance in non-pressure applications as well. Pipe joints for pressure service are fully restrained, so the system retains polyethylene's outstanding elasticity, ductility, and flexibility. When joined, systems can withstand unstable soils, frost heave, tidal flows and wave action, pressure surges, and wide temperature swings.

DriscoPlex™ OD Controlled PE pipe is available in standard CTS tubing outside diameters from 1/2 in. through 2 in.; standard IPS outside diameters from 1/2 in. through 54 in.; standard Ductile Iron Pipe Sizes (DIPS) from 3 in. through 48 in., and standard metric sizes from 16 mm through 1400 mm. Custom outside diameters are also available.

Standard wall thicknesses cover pressure ranges from 40 psi (2.8 bar; 0.28 MPa) through 267 psi (18.41 bar, 1.84 MPa). However, Performance Pipe has developed proprietary technology for heavy wall, high pressure pipes for specialized applications such as mine tailing slurries, and dewatering lines. Custom manufactured polyethylene pipes for internal pressures over 600 psi can be manufactured using this technology. Thin wall pipes for custom applications are also available.

DriscoPlex™ 2000 SPIROLITE® Inside Diameter Controlled Polyethylene Pipe

DriscoPlex™ 2000 SPIROLITE® pipe is produced using proprietary technology developed by Performance Pipe for inside diameter controlled, polyethylene pipe. This process extrudes polyethylene over a mandrel. Various extrusion shapes are employed for efficient material usage, and to provide resistance to deflection from external pressure.

DriscoPlex™ 2000 SPIROLITE® polyethylene pipes are intended for large diameter, gravity flow, non-pressure, and low pressure applications such as sanitary and storm sewers, culverts, drains, and odor control. Pipes are produced from 18" (457 mm) inside diameter through 120" (3048 mm) inside diameter in accordance with ASTM F 894 *Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe.*

Available wall profiles produce ribbed exterior pipes with a smooth interior, and smooth exterior pipes with a smooth interior. Standard pipes are produced in 20 ft. laying lengths with integral, gasketed spigot and bell joints. The deep bell joints are designed to prevent infiltration, and will meet or exceed ASTM D 3212 deflected joint performance requirements. Shorter, 13 ft., laying lengths and custom wall profiles are available on special order. DriscoPlex™ 2000 SPIROLITE pipe is also fabricated into custom fittings, horizontal and vertical tanks, and manholes.