

COMPARISON OF HDPE CONDUIT AND FABRIC DIVIDER INSTALLED AS INNERDUCT

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Foreword

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The purpose of this technical note is to provide a practical comparison of HDPE innerduct and fabric divider technologies for conduit, and to assist specifiers, contractors and others with useful selection criteria when determining which technology to employ for fiber optic cable applications. This technical note replaces PPI Technical Report TR-44 (2008) which addressed the same topic in a different manner. TR-44 has been withdrawn.

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1.0 INTRODUCTION

The purpose of this Technical Note is to provide a practical comparison of high density polyethylene (HDPE) conduit (innerduct and microduct), and fabric divider technologies, two options for sub-dividing installed larger conduit. For the purpose of clarity, both HDPE innerducts and microducts may be referred to as “HDPE conduit” when referencing both options simultaneously in this document, whereas Fabric Divider will be referenced as “Fabric Divider”. Both technologies are used to house and protect fiber optic cables for various applications.

This Technical Note will focus on comparing each technology’s installation techniques, advantages, strengths, and protection capabilities, along with cable installation considerations. It is intended to assist specifiers, contractors, and others with useful selection criteria when determining which technology to employ.

Table 1 is provided to clarify the typical size range of HDPE innerduct and microduct technology, and to provide a general description of each.

Table 1: HDPE Conduit Type Innerducts

HDPE Conduit	Trade Sizes	Description
Standard Innerduct	½” to 2”	Trade size designation in inches, high density polyethylene (HDPE) in various wall types available in individual lengths or multiple lengths on reels.
Microduct	5/3.5 mm to 27/20 mm	OD/ID designation in millimeters, high density polyethylene (HDPE) in various wall types provided in individual lengths or multiple lengths on reels.

2.0 DESCRIPTIONS

High density polyethylene (HDPE) conduit, as standard innerduct or microduct, and fabric dividers, sometimes referred to as *fabric innerduct*, are three options for sub-dividing an installed empty or occupied conduit for current and future installation of additional fiber optic cables. HDPE conduits and fabric dividers can be installed into empty or occupied conduits. Occupied conduits are in-situ conduits, typically where one or more cables have been previously installed. When HDPE conduit or fabric divider is being installed into occupied conduits, the process is referred to as an *override*.

ASTM Standard Specification F2160 *Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD)* defines “innerduct” as “a conduit installed inside a conduit”. In other words, it is one or more HDPE innerducts placed within a larger conduit in order to subdivide it.

The larger conduit may house one or more pathways (i.e., innerducts) providing mechanical protection from external forces (e.g., rocks) and from the weight of the surrounding earth.

HDPE conduits and fabric dividers used as innerducts can have thinner walls than the outer ducts, since their primary function is to provide separate pathways for cables. The outer conduit provides the necessary protection in the direct-buried environment. The use of innerducts is to create pathways for current and future needs for installing fiber optic cables. Consult your supplier for wall options that may be available.

Innerducts are typically extruded separately from the installed conduit and are fed into the installed conduit in the factory or in the field, in accordance with customer specifications. Innerducts may be produced of different colors to help identify individual pathways throughout the route. See **Figure 1** for typical HDPE installed as an innerduct configuration.



Figure 1: HDPE Innerduct within Larger HDPE Conduit