

# FUSIBLE PVC® PIPE REDUCES CONSTRUCTION COSTS

*Use of Fusible PVC® on jack-and-bore installations cuts costs*

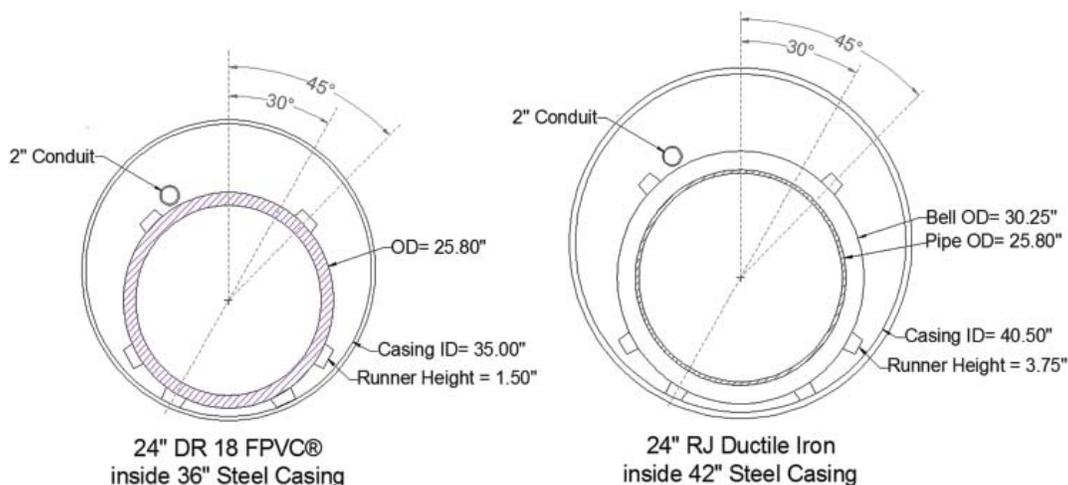
## Overview

As utilities tackle the challenges of rehabilitating and expanding water distribution and wastewater collection networks, they are increasingly turning to trenchless installation methods to reduce cost and minimize disruption to the public.

Jack-and-bore installation is often one of the most economical, reliable, and accurate ways to install a new cased pipe under established highways and railways without having to disrupt or impede the use of those arteries. The cost and sizing of a jack-and-bore installation is directly related to the largest cross section diameter of the carrier pipe. For example, if a design calls for a 24-inch C905® PVC bell and spigot carrier pipe, the designer must select a casing size that will accommodate the OD of the pipe bell (~32 inches). If a mechanical bell restrainer is required, the casing size must be increased to accommodate an OD of ~35 inches. In this example, the designer would typically select a 42-inch steel casing to accommodate the restrained pipe section.

Design engineers are increasingly electing to incorporate the Fusible PVC® family of pipe products into projects to provide an efficient, less costly jack-and-bore design. Including this option allows the designer to take advantage of the low profile, thermal butt-fused PVC joint, while still providing a restrained pipe design through the cased section of the pipeline. A Fusible PVC® pipe joint has a diameter that is nearly identical to the pipe barrel, making the casing size a function of the pipe barrel diameter instead of the pipe bell or mechanical restraint diameter. As a result, casing designs using Fusible PVC® pipe as the carrier pipe can utilize smaller casings than designs with segmented pipe. For example, 24-inch Fusible C-905® pipe has an outside diameter of 25.8 inches. The geometry of the pipe and fused joint allow it to easily fit within a 30-inch casing, where it can be placed directly on the pipe invert or installed with low profile casing insulators/spacers which allow for minor elevation adjustments as required.

By reducing the effective OD of the carrier pipe, a smaller casing pipe can be used, which can provide substantial savings to the owner while achieving the desired design performance. This reduction in casing size has consistently delivered 30-40% savings in jack-and-bore sections compared to segmented carrier pipe designs. It is not uncommon to see \$120-\$150/LF installation and material savings with the smaller casing option in the example illustrated below:



## Fusible PVC® Advantages

### Smaller casing size

- Integral restrained joint provides smaller OD for given ID and pressure class, facilitating the smallest possible casing diameter and eliminating restraint fitting cost
- Lower casing material cost
- Lower casing installation costs due to smaller bore hole size

### No casing spacers required

- Low-profile restrained joint can rest directly on the bottom of a casing pipe, which eliminates the requirement for casing spacers
- Non-metallic carrier pipe eliminates requirement to insulate the carrier pipe from the casing



Underground Solutions, Inc. provides infrastructure technologies for water, wastewater and power cable conduit applications. Underground Solutions' Fusible PVC® pipe products, including Fusible C-900®, Fusible C-905® and FPVC®, utilize patented technology to produce a fused monolithic, fully-restrained, gasket-free, leak-free piping system ideal for trenchless (horizontal directional drilling, pipe bursting and sliplining) or conventional "open-cut" installations and are available in 4-inch to 36-inch diameters. The combination of standard fittings and lower weight with higher flow for a given pressure class versus other thermoplastic pipes ensures that Fusible PVC® pipe brings greater economy to most pipeline projects.



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