

TECH TIPS

FROM NASSCO

TECH TIPS BY NASSCO IS A BI-MONTHLY ARTICLE ON TRENDS, BEST PRACTICES AND INDUSTRY ADVICE FROM NASSCO'S TRENCHLESS TECHNOLOGY MEMBERSHIP PROFESSIONALS.

GUIDELINES FOR PIPE BURSTING TECHNOLOGY

By NASSCO member Matt Timberlake, Vice President, Ted Berry Company, Inc., IPBA Marketing Committee Chair

Pipe bursting is a widely used and proven method for replacing underground utility lines that convey critical materials like water, sewer, gas, and others. Pipe bursting is a trenchless replacement method in which an existing pipe is broken either by brittle fracture or by splitting, using an internal, mechanically applied force by a bursting tool. At the same time, a new pipe of the same or larger diameter is pulled in, replacing the existing pipe. The back end of the bursting head is connected to the new pipe and the front end is connected to a cable or pulling rod. The new pipe and bursting head are launched from the insertion pit, and the cable or pulling rod is pulled from the receiving pit. The energy (or power source) which moves the bursting tool forward to break the existing pipe comes from pulling cable or rods, hydraulic power to the head, or pneumatic power to the head, depending on the bursting system design. This energy (or power) is converted to a fracturing force on the existing pipe breaking it and temporarily expanding the diameter of the cavity. The bursting head is pulled through the pipe creating a temporary cavity and pulling behind it the new pipe from the insertion pit.



PNEUMATIC PIPE BURSTING

CLASSIFICATIONS

Pipe bursting systems are primarily classified as: (1) pneumatic pipe bursting and (2) static pipe bursting. The differences among these are in the source of energy and the method of breaking the old pipe, and some consequent differences in operation. The selection of a specific replacement method depends on geotechnical conditions, degree of upsizing required, type of new pipe, construction of the existing pipeline, depth and profile of the existing pipeline, availability of experienced contractors and equipment, risk assessment, and other site-specific issues. Existing pipe types are classified as either "fracturable" or "non-fracturable" which characterizes the way they are "burst" or "split." Most pipe materials common to water, sewer, and gas construction since the late 1800s are candidates for bursting; however each type will have special considerations regarding the method and specific tooling required to properly break and expand the fractured pipe.

GUIDELINES

While used for more than 40 years, guidelines for pipe bursting technology are still needed. To help meet this need, the IPBA (International Pipe Bursting Association) has completed a reference for pipe bursting mainline sewers. The "IPBA Guideline for Pipebursting" was collaborated by professionals with expertise in all aspects of the industry and assembled to provide a factual representation of the technology, its capabilities, limitations, and methods. After nearly a year of being published, the guideline has been widely used by many in the industry and is



STATIC PIPE BURSTING

an excellent reference for seasoned veterans to pipe bursting, as well as individuals new to the industry. The goal is for someone with little or no knowledge of pipe bursting technology to read through the guide and determine if pipe bursting may be an option for their pipe replacement project.

CONSIDERATIONS

Design considerations evolve from factors including ground conditions, groundwater conditions, degree of upsizing, construction and depth of the existing pipeline, adjacent utilities, and other site-specific characteristics. As with any type of underground utility construction, certain factors may limit the feasibility of a technology, including the technical and financial feasibility of pipe bursting. When making a selection, it is important to know how to identify limiting factors and compare them to the relative effects on a specific project. The IPBA recognizes that growth of the pipe bursting market in North America is reliant on continued success of projects, expanded knowledge and experience of the utility system owners and their consultants, trained field staff, and the responsible use of pipe bursting technology. It is generally accepted, therefore, that the contracting authority will use a baseline for determining contractor pre-qualification based on proven experience of projects of similar type, size, and class of difficulty.

To download guidelines and for more information, visit www.ipbaonline.org. For more info, including how to obtain NASSCO's Introduction to Sewer Cleaning with Jetting Equipment video, please visit www.nassco.org