

# Direct Steerable Pipe Thrusting

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# Direct Steerable Pipe Thrusting

Sponsored by the  
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## PREFACE

This manual of practice was prepared by the Task Committee on Direct Steerable Pipe Thrusting (DSPT) of the ASCE Committee on Trenchless Installation of Pipelines (TIPS), as part of the Utility Engineering & Surveying Institute (UESI). The manual describes the current Direct Steerable Pipe Thrusting method used by engineering and construction professionals in designing and installing pipelines using the DSPT method.

This manual of practice has been created by a group of engineers, contractors, equipment manufacturers, pipeline owners, and academics fully knowledgeable of the method and its use. This manual considers many of the advances that have occurred since the initial development of the technology. However, the task committee acknowledges that DSPT continues to evolve and contractor and equipment capabilities continue to develop.

Sections of this manual of practice have been written assuming that the reader may be unfamiliar with DSPT methodology. No document can encompass all issues on a particular DSPT project. Improvements in best practices and technology continue to advance so that future use of this manual on any project must consider not only the specific characteristics of the particular project but also further improvements in best practices and technology.

The stakeholders of a pipeline trenchless project are encouraged to consider all trenchless methods before concluding that the DSPT method is the most suitable construction method available. Manuals and reports on engineering practice have been written by ASCE and are available for different construction methods. If the engineer responsible for the pipeline project does not have a strong background in trenchless design, an engineering firm that specializes in trenchless designs should be consulted.

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# CHAPTER 1

## INTRODUCTION AND HISTORY

### 1.1 INTRODUCTION

Pipelines of various types, sizes, and purposes are routinely installed below the ground surface in every community around the world. The most common method of pipeline installation is open cut, also known as trenching. However, open-cut installation results in obvious and sometimes significant unwanted ground disturbance. Consequently, numerous trenchless methods of pipeline installation have been developed to reduce surface impacts and public inconvenience (Table 1-1).

Direct steerable pipe thrusting (DSPT) was developed to fill a need for a pipeline installation in ground conditions challenging to other trenchless methods. Direct steerable pipe thrusting is a relatively recent innovation in the trenchless industry combining some of the characteristics of horizontal directional drilling (HDD) and conventional microtunneling. Direct Pipe, developed by Herrenknecht AG (Herrenknecht) in Germany, was the first commercially available system to fall into the DSPT category of trenchless technology. As described in Section 1.2, the first Direct Pipe installation was completed in Germany in 2007; as of 2022, more than 200 installations have been completed worldwide. This Manual of Practice (MOP) reflects the current state of industry development.

#### 1.1.1 Definition of Direct Steerable Pipe Thrusting

Direct steerable pipe thrusting is a near-surface launched, thrusting microtunnel method of pipeline installation that can install a steel pipe in a single pass along both horizontal and vertical curves.