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English Version

Thermoplastics piping and ducting systems - Systems outside building structures for the conveyance of water or sewage - Practices for underground installation

Systèmes de canalisations et de gaines en matières thermoplastiques - Systèmes d'adduction d'eau ou d'assainissement à l'extérieur de la structure des bâtiments
- Pratiques pour la pose en enterré

Thermoplastische Rohrleitungs- und Schutzrohr-Systeme - Systeme außerhalb der Gebäudestruktur zum Transport von Wasser oder Abwasser - Verfahren zur unterirdischen Verlegung

This Technical Report was approved by CEN on 9 March 2013. It has been drawn up by the Technical Committee CEN/TC 155.

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Foreword

This document (CEN/TR 1046:2013) has been prepared by Technical Committee CEN/TC 155 “Plastics Piping Systems and Ducting Systems”, the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes ENV 1046:2001, ENV 1401-3:2001, CEN/TS 1852-3:2003 and CEN/TS 14758-3:2006.

This Technical Report is based on the results of the work being undertaken in ISO/TC 138 “Plastics pipes, fittings and valves for the transport of fluids”, which is a Technical Committee of the International Organization for Standardization (ISO) (see Bibliography), modified as necessary to be applicable to piping systems of any thermoplastics materials and any relevant application.

Introduction

This Technical Report contains guidance for installation procedures for thermoplastics piping systems and their components intended to be used below ground for pressure and non-pressure applications outside building structures. It is intended to be used in conjunction with general standards for installation recommendations, for example those issued by CEN/TC 164 "Water supply" and CEN/TC 165 "Waste water engineering" as stated in EN 805 and EN 1610 respectively.

NOTE Guidelines for installation of pipelines made out of thermosetting materials can be found in the ISO 10465 series [11, 12, 13].

This Technical Report is based on the results from research with full-scale trials undertaken by the thermoplastics pipes industry and expressed in CEN/TS 15223.

This Technical Report is a guidance document only. It provides a set of general guidelines which gives best practices for installation of thermoplastics piping and ducting systems outside building structures underground.

This Technical Report includes recommendations for the pipe surround and backfilling procedures but not road base and road sub-base details. Attention is drawn to any national regulations which may cover these or other aspects of installation.

This Technical Report does not cover matters relating to renovation of existing pipeline systems using lining techniques, or replacement of existing pipeline systems using trenchless techniques.

This Technical Report is intended to be used by authorities, design engineers, installation contractors and manufacturers.

In this Technical Report, much of the guidance is expressed as requirements, e.g. by use of "shall" or by instructions in the imperative. It is strongly recommended that these be followed whenever applicable.

Other guidance is presented for consideration as a matter of judgement in each case, e.g. by use of "should".

1 Scope

This Technical Report is applicable to the installation of thermoplastics piping systems to be used for the conveyance of water or sewage under gravity and pressure conditions underground. It is intended to be used for pipes of nominal size up to and including DN 1600.

Wherever the term “pipe” is used in this Technical Report, it also serves to cover any “fittings”, “ancillary” products and “components” if not otherwise specified.

NOTE 1 This document does not apply to pipelines for gas supply (see EN 12007–2, *Gas infrastructure - Pipelines for maximum operating pressure up to and including 16 bar - Part 2: Specific functional requirements for polyethylene (MOP up to and including 10 bar)*).

NOTE 2 It is assumed that additional recommendations and/or requirements are detailed in the individual materials voluntary product standards. Instances where this is expected to apply include those indicated in this Technical Report as follows:

- a) any special transportation requirements (see 5.2);
- b) maximum storage height (see 5.2 and 5.4);
- c) maximum storage period in direct sunlight (see 5.4);
- d) any climatic conditions requiring special storage (see 5.4);
- e) limiting initial and/or long-term deflections (see 6.1.1 and 6.1.2);
- f) information on mole ploughing and boring (see and 6.2), if applicable;
- g) selection of appropriate jointing system (see Clause 7);
- h) recommended radii of curvature for cold bending (see 8.1);
- i) permitted rates of loss of water under test (see 9.2.1);
- j) if applicable the relationship between SDR and stiffness.

Requirements and instructions concerning commissioning of systems can be found in EN 805 and EN 1610 and the relevant national and/or local regulations.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 476, *General requirements for components used in drains and sewers*

EN 681 (all parts), *Elastomeric seals - Materials requirements for pipe joint seals used in water and drainage applications*

EN 805, *Water supply - Requirements for systems and components outside buildings*

EN 1610, *Construction and testing of drains and sewers*

CEN/TS 15223, *Plastics piping systems - Validated design parameters of buried thermoplastics piping systems*