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Plastic piping systems - Structural design of buried thermoplastics piping systems - Procedure and guidance under various conditions of loading

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/26

Táto predbežná slovenská technická norma je určená na overenie. Prípadné pripomienky pošlite do októbra 2027 Úradu pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky.

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TECHNICAL SPECIFICATION

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English Version

Plastic piping systems - Structural design of buried thermoplastics piping systems - Procedure and guidance under various conditions of loading

Systèmes de canalisations en plastique - Conception structurelle des systèmes enterrés de canalisations en thermoplastique - Procédure et recommandations dans diverses conditions de charge

Kunststoff-Rohrleitungssysteme - Statische Bemessung erdverlegter Rohrleitungssysteme aus Thermoplasten - Verfahren und Empfehlungen unter verschiedenen Belastungsbedingungen

This Technical Specification (CEN/TS) was approved by CEN on 11 August 2025 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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CEN/TS 15223:2025 (E)

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CEN/TS 15223:2025 (E)**European foreword**

This document (CEN/TS 15223:2025) 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 shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 15223:2017.

CEN/TS 15223:2025 includes the following significant technical changes with respect to CEN/TS 15223:2017:

- the title and scope have been changed;
- content related to functional design has been taken out. A separate document with guidance for functional design aspects for buried thermoplastics piping systems is under development;
- a calculation method has been introduced in 5.4;
- examples on how to use the structural design graph and calculation method have been introduced in Annex A and Annex B;
- guidance for design in special conditions has been introduced in Annex F.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

This document covers structural design of pressure and non-pressure thermoplastics piping systems.

Pressure and non-pressure thermoplastics piping system behave in the same way during installation and during the time the system is without pressure but behave differently when pressurized. This behaviour is explained in this document.

This document includes a structural design graph for small diameter pipes and a calculation method for large diameter pipes. The basis for this is research carried out by The European Plastic Pipe and Fitting Association, TEPPFA on structural performance with full-scale trials. This is described in the TEPPFA studies “Design of buried plastics pipe systems” [5], and “Design of large diameter buried PE and PP pipes without internal pressure” [18].

CEN/TS 15223:2025 (E)**1 Scope**

This document specifies the procedure and gives guidance for structural design of buried thermoplastics piping systems under various conditions of loading for non-pressure application. This document can be used for pressure piping systems before applying operating pressure.

This document is applicable to all solid and structured wall thermoplastics piping systems covered by an EN standard developed by CEN/TC 155.

NOTE 1 PE piping systems for gas infrastructure are covered in EN 12007-2 [1].

This document gives guidance for structural design by either validated field experience or calculation, and contents of EN 476 [2], EN 1295-1 [3] and EN 1610 [4] have been considered.

At the design stage, precise details of types of soil and installation conditions are not always available. The choice of design assumptions is left to the judgement of the designer/specifier. In this respect, this technical specification provides general indications and advice.

NOTE 2 It is the responsibility of the designer/specifier to make the appropriate selection of the design aspects, taking into account any relevant National regulation and installation practices or codes.

2 Normative references

There are no normative references in this document.

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