

STN	Statický výpočet potrubí uložených v zemi pri rôznych zaťažovacích podmienkach Časť 1: Všeobecné požiadavky	STN EN 1295-1
		75 0210

Structural design of buried pipelines under various conditions of loading - Part 1: General requirements

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

Táto norma bola označená vo Vestníku ÚNMS SR č. 08/19

Obsahuje: EN 1295-1:2019

Oznámením tejto normy sa ruší
STN EN 1295-1 (75 0210) z marca 2001

129355

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1295-1

April 2019

ICS 23.040.01

Supersedes EN 1295-1:1997

English Version

**Structural design of buried pipelines under various
conditions of loading - Part 1: General requirements**

Calcul de résistance mécanique des canalisations
enterrées sous diverses conditions de charge - Partie 1:
Prescriptions générales

Statische Berechnung von erdüberdeckten
Rohrleitungen unter verschiedenen
Belastungsbedingungen - Teil 1: Allgemeine
Anforderungen

This European Standard was approved by CEN on 14 January 2019.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

European foreword	5
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
3.1 Installation terms	7
3.2 Design terms	9
4 Requirements	9
5 Basis of design procedures	10
5.1 General	10
5.2 External loads	10
5.3 Limit states	11
5.4 Longitudinal effects	11
6 Additional considerations for pressure pipelines	11
6.1 General	11
6.2 Stresses and strains resulting from simultaneous loads	12
6.3 Effect of pressure on deformation	12
6.4 Buckling of pressure pipes	12
6.5 Thrusts and longitudinal stresses	13
7 Influence of construction procedures	13
7.1 General	13
7.2 Trenching procedures	13
7.3 Pipe bedding	13
7.4 Filling procedures	14
8 Design philosophies and factors of safety	14
Annex A (informative) Pipe definition according to cross-sectional behaviour	15
Annex B (informative) Nationally established methods of design	16
B.1 Identification of methods and addresses where they are available	16
B.1.1 Austria	16
B.1.2 Belgium	16
B.1.3 Denmark	16
B.1.4 Finland	17
B.1.5 France	17
B.1.6 Germany	18
B.1.7 Netherlands	18
B.1.8 Norway	19
B.1.9 Poland	19
B.1.10 Spain	19
B.1.11 Sweden	20

B.1.12 Switzerland	20
B.1.13 United Kingdom	21
B.2 Description of methods	21
B.2.1 Austria	21
B.2.1.1 Application.....	21
B.2.1.2 Basic input data.....	21
B.2.1.3 Structural design.....	21
B.2.1.4 Loading.....	21
B.2.1.5 Types of pipes	22
B.2.1.6 Method of calculation.....	22
B.2.1.7 Required analysis	22
B.2.2 Belgium.....	23
B.2.2.1 Application.....	23
B.2.2.2 Basic input data.....	23
B.2.2.3 Structural design.....	23
B.2.2.4 Loading.....	23
B.2.2.5 Type of pipes	23
B.2.2.6 Method of calculation.....	23
B.2.2.7 Safety factors	24
B.2.3 Denmark	24
B.2.3.1 Loads	24
B.2.3.2 Safety.....	25
B.2.3.3 Partial safety factors.....	26
B.2.3.4 Calculations.....	26
B.2.4 Finland	26
B.2.5 France	26
B.2.6 Germany.....	27
B.2.7 Netherlands	28
B.2.8 Norway.....	28
B.2.8.1 Design of rigid pipes according to internal reports 1521 and 1554	28
B.2.8.1.1 Earth load.....	28
B.2.8.1.2 Traffic load.....	29
B.2.8.2 Design of buried plastic pipes according to VAV P 70 (Swedish standard).....	29
B.2.9 Poland	29
B.2.9.1 Classification of pipes.....	29
B.2.9.2 Limit states considered	29

EN 1295-1:2019 (E)

B.2.9.3 Assessment of loads	29
B.2.9.4 Design of buried pipes.....	29
B.2.9.5 Nomographs for simplified design.....	30
B.2.10 Spain	30
B.2.10.1 Concrete pipes.....	30
B.2.10.2 Plastic pipes.....	30
B.2.11 Sweden.....	30
B.2.11.1 Design of buried plastics pipes according to Svenskt Vatten P92.....	30
B.2.11.1.1 Soil load	30
B.2.11.1.2 Traffic load	31
B.2.11.1.3 Short-term deflection	31
B.2.11.1.4 Long-term deflection	31
B.2.11.1.5 Strain	31
B.2.11.1.6 Buckling.....	31
B.2.11.1.7 Nomographs for simplified design	31
B.2.11.2 Design of rigid pipes according to Svenskt Vatten P99.....	31
B.2.11.2.1 General.....	31
B.2.11.2.2 The vertical loads considered are:	32
B.2.11.2.3 Horizontal loads	32
B.2.12 Switzerland.....	32
B.2.13 United Kingdom.....	32
B.2.13.1 Classification of pipes.....	32
B.2.13.2 Design aids	32
B.2.13.3 Assessment of loads	33
B.2.13.4 Limit states considered	33
B.2.13.5 Factors of safety.....	33
Bibliography.....	34

European foreword

This document (EN 1295-1:2019) has been prepared by Technical Committee CEN/TC 165 "Waste water engineering", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

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 EN 1295-1:1997.

The principal change in this revision is the following:

- a) Annex B "Nationally established methods of design" has been updated.

This standard is intended for use in conjunction with the series of product standards covering pipes of various materials for the water industry.

This standard comprises two parts:

- Part 1, General requirements: it deals with the requirements for structural design of pipelines and gives the basic principles of the nationally established methods of design;
- Part 2, Summary of the nationally established methods of design: it gives an overview of these methods as prepared by the various countries where they are in use.

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

Introduction

The structural design of buried pipelines constitutes a wide ranging and complex field of engineering, which has been the subject of extensive study and research, in many countries over a period of very many years.

Whilst many common features exist between the design methods which have been developed and established in the various member countries of CEN, there are also differences reflecting such matters as geological and climatic variations, as well as different installation and working practices.

In view of these differences, and of the time required to develop a common design method which would fully reflect the various considerations identified in particular national methods, a two stage approach has been adopted for the development of this European Standard.

In accordance with this two stage approach, the Joint Working Group, at its initial meeting, resolved "first to produce an EN giving guidance on the application of nationally established methods of structural design of buried pipelines under various conditions of loading, whilst working towards a common method of structural design". This standard represents the implementation of the first part of that resolution.

1 Scope

This document specifies the requirements for the structural design of water supply pipelines, drains and sewers, and other water industry pipelines, whether operating at atmospheric, greater or lesser pressure.

In addition, this document gives guidance on the application of the nationally established methods of design declared by and used in CEN member countries at the time of preparation of this document.

This guidance is an important source of design expertise, but it cannot include all possible special cases, in which extensions or restrictions to the basic design methods may apply.

Since in practice precise details of types of soil and installation conditions are not always available at the design stage, the choice of design assumptions is left to the judgement of the engineer. In this connection the guide can only provide general indications and advice.

This document specifies the requirements for structural design and indicates the references and the basic principles of the nationally established methods of design (see Annexes A and B).

2 Normative references

There are no normative references in this document.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN