SVENSK STANDARD
SS-EN 13480-6:2017+C2:2019

Fastställd/Approved: 2019-09-04
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 23.040.01; 23.040.09

SWEDISH STANDARDS INSTITUTE

Industriella rörledningar av metalliska material – Del 6: Tilläggskrav för markförlagda rörledningar

Metallic industrial piping – Part 6: Additional requirements for buried piping

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Europastandarden EN 13480-6:2017 Issue 2 (2019-06) gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 13480-6:2017 issue 2 (2019-06).

Denna standard ersätter SS-EN 13480-6:2017, utgåva 3 och SS-EN 13480-6:2017/A1:2019, utgåva 1.

The European Standard EN 13480-6:2017 Issue 2 (2019-06) has the status of a Swedish Standard. This document contains the official English version of EN 13480-6:2017 issue 2 (2019-06).

This standard supersedes the Swedish Standard SS-EN 13480-6:2017, edition 3 and SS-EN 13480-6:2017/A1:2019, edition 1.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Konstruktion, tillverkning och kontroll av tryckbärande anordningar, SIS/TK 298.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13480-6

June 2017

ICS 23.040.01

Supersedes EN 13480-6:2012

English Version

Metallic industrial piping - Part 6: Additional requirements for buried piping

Tuyauteries industrielles métalliques - Partie 6 : Exigences complémentaires pour les tuyauteries enterrées

Metallische industrielle Rohrleitungen - Teil 6: Zusätzliche Anforderungen an erdgedeckte Rohrleitungen

This European Standard was approved by CEN on 21 June 2017.

This European Standard was corrected and reissued by the CEN-CENELEC Management Centre on 26 June 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.

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

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Ref. No. EN 13480-6:2017 E

Contents

Page

European foreword

This document (EN 13480-6:2017) has been prepared by Technical Committee CEN/TC 267 “Industrial piping and pipelines”, the secretariat of which is held by AFNOR.

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 December 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This European Standard EN 13480 for metallic industrial piping consists of eight interdependent and not dissociable Parts which are:

— *Part 1: General;*

— *Part 2: Materials;*

— *Part 3: Design and calculation;*

— *Part 4: Fabrication and installation;*

— *Part 5: Inspection and testing;*

— *Part 6: Additional requirements for buried piping;*

— *CEN/TR 13480-7, Guidance on the use of conformity assessment procedures;*

— *Part 8: Additional requirements for aluminium and aluminium alloy piping.*

Although these Parts may be obtained separately, it should be recognised that the Parts are inter-dependant. As such the manufacture of metallic industrial piping requires the application of all the relevant Parts in order for the requirements of the Standard to be satisfactorily fulfilled.

This European Standard will be maintained by a Maintenance MHD working group whose scope of working is limited to corrections and interpretations related to EN 13480.

The contact to submit queries can be found at http://www.unm.fr (en13480@unm.fr). A form for submitting questions can be downloaded from the link to the MHD website. After subject experts have agreed an answer, the answer will be communicated to the questioner. Corrected pages will be given specific issue number and issued by CEN according to CEN Rules. Interpretation sheets will be posted on the website of the MHD.

This document supersedes EN 13480-6:2012. This new edition incorporates the Amendments which have been approved previously by CEN members, and the corrected pages up to Issue 4 without any further technical change. Annex Y provides details of significant technical changes between this European Standard and the previous edition.

Amendments to this new edition may be issued from time to time and then used immediately as alternatives to rules contained herein. It is intended to deliver a new Issue of EN 13480:2017 each year, consolidating these Amendments and including other identified corrections. Issue 2 (2019-06) consolidates Amendment EN 13480-6:2017/A1:2019; it includes the corrected pages listed in Annex Y.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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.

1 Scope

This document specifies requirements for industrial piping either totally buried or partly buried and partly run in sleeves or similar protection. It is used in conjunction with the other six parts of EN 13480.

Where buried piping subject to this standard connects to piping installed under other jurisdiction such as pipelines, the transition should be made at a closing element e.g. an isolating or regulating valve separating the two sections. This should be close to the boundary of the industrial site, but may be inside or outside the boundary.

Operating temperature up to 75 °C.

NOTE For higher temperatures reference should be made to EN 13941+A1:2010, but it should be kept in mind, that CEN/TC 107 only deals with pre-insulated piping with temperatures up to 140 °C and diameters up to 800 mm, which is state of the art for these products.

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 13480-1:2017, *Metallic industrial piping — Part 1: General*

EN 13480-2:2017, *Metallic industrial piping — Part 2: Materials*

EN 13480-3:2017, *Metallic industrial piping — Part 3: Design and calculation*

EN 13480-5:2017, *Metallic industrial piping — Part 5: Inspection and testing*

3 General

3.1 Safety

a) Buried piping within an industrial site presents a potential hazard to site personal, equipment and environment. The sections set out in this document provide guidance as to how the hazard presented by the piping may be assessed, and the integrity of the piping system maintained.

NOTE 1 Attention is drawn to appropriate National or Local regulations.

b) The main factors to be considered are:

— Design including Routing, Layout, Interaction with connecting systems;

— Materials and Construction Specification and Quality Control;

— Operating Procedures and Control;

— Corrosion protection;

— External Impact Protection and Mitigation.

All of these factors interact.

NOTE 2 It is recommended that all buried piping be subjected to a formal hazard analysis procedure.

NOTE 3 Attention is drawn to appropriate National or Local regulations.

c) Additional safety requirements may be specified for group 1 fluids according to EN 13480-1:2017, including automated means of isolating buried sections of piping.

3.2 Routes

All routes for buried piping shall be agreed with the owner and operator of the site. The site owner shall be required to furnish details of all other actual or planned buried services (including cables) and all roadways or other surface loads within the construction working width or zone of the proposed pipe.

Piping in category III according to EN 13480-1:2017 shall be separated from any other pipe or service by a minimum distance of 0,25 m unless it can be demonstrated that a smaller distance is acceptable.

3.3 Depth of installation

In the absence of special protection (e.g. concrete slabs) buried piping shall be provided with a minimum cover of 0,8 m.

The designer shall consider increasing the extent of cover above the minimum where penetrating cold or frost heave of the ground is likely, or where damage from excavation activities is a possibility.

3.4 Pipes marking and recording

Buried pipes shall be marked by a continuous tape or other agreed means placed directly above the pipe and no closer than 0,3 m.

All buried pipes shall be identified on as-installed drawings which accurately locate the route relative to structures or other permanent features. The site owner may require the route to be physically marked by the use of identification posts or cover slabs at appropriate intervals.

3.5 Internal inspection provisions

Where periodic internal inspection of buried piping is anticipated, and the specification identifies the method proposed, the designer shall incorporate appropriate means of introducing and removing the inspection devices. Such closures, and openings for inspection shall be designed in accordance with EN 13480-3:2017.

3.6 Contents removal

The design of the piping system shall make allowance for the safe filling and removal of the contents. This shall include vent and drain points or falls as required, and the selection of appropriate bends and fittings.

3.7 Trench drainage

The designer shall recognize that pipe trenches for buried piping can act as channels for ground water. Appropriate means shall be employed to ensure that the bottom of the trench has sufficient slope to soak-aways or sumps to prevent accumulation of water around the piping. Where such measures are not possible, the designer shall include the possibility of flotation in the design calculations.

In addition, the drainage arrangements shall dispose of the hydrostatic test water. Care shall be exercised during this operation to ensure that washout of bedding material does not occur.

4 Materials

Materials shall conform to the requirements of EN 13480-2:2017 except that the value for the specified minimum elongation after fracture for the longitudinal direction (see EN 13480-2:2017, 4.1.4.) shall be 20 %.

Materials with elongation values less than 20 % shall be avoided, and shall only be used subject to agreement between the purchaser and the designer.

5 Design and calculation

5.1 Minimum wall thickness for buried piping

Unless the pressure design calculations lead to a greater thickness, the wall thickness of the pipe shall not be lower than the value given in Table 1.

Table 1 — Minimum wall thickness for buried piping

Nominal size (DN)	Minimum thickness mm
DN ≤ 80	3,2
80 < DN ≤ 150	4,7
150 < DN ≤ 450	6,35
450 < DN ≤ 600	7,9
600 < DN ≤ 950	9,5
950 < DN	1 % DN