

METALLIST TÖÖSTUSTORUSTIK. OSA 5: KONTROLL JA
KATSETAMINE

Metallic industrial piping - Part 5: Inspection and
testing

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN 13480-5:2024 sisaldab Euroopa standardi EN 13480-5:2024 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.07.2024.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN 13480-5:2024 consists of the English text of the European standard EN 13480-5:2024.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 24.07.2024.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
--	---

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 23.040.01

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele. Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation: Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

EN 13480-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2024

ICS 23.040.01

Supersedes EN 13480-5:2017

English Version

Metallic industrial piping - Part 5: Inspection and testing

Tuyauteries industrielles métalliques - Partie 5:
Inspection et contrôle

Metallische industrielle Rohrleitungen - Teil 5: Prüfung

This European Standard was approved by CEN on 9 July 2024.

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, 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 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

	Page
European foreword.....	4
1 Scope.....	5
2 Normative references.....	6
3 Terms and definitions.....	7
4 Symbols and abbreviations.....	7
5 Determination of inspection and testing requirements.....	7
5.1 General.....	7
5.2 Classification of piping.....	7
6 Design review.....	7
7 In-process inspection and testing.....	8
7.1 General.....	8
7.2 Materials and formed pressure retaining parts.....	8
7.2.1 General.....	8
7.2.2 Verification of material.....	8
7.2.3 Verification of formed pressure retaining parts.....	8
7.2.4 Non-destructive testing of formed parts.....	8
7.2.5 Destructive testing of formed parts.....	12
7.3 Welding.....	12
7.3.1 Review of welding documents.....	12
7.3.2 Inspection before welding.....	12
7.3.3 Testing and inspection during welding.....	13
7.3.4 Inspection after welding.....	13
7.3.5 Inspection of built up pipe ends.....	13
7.4 Heat treatment.....	13
8 Non-destructive testing of welds.....	13
8.1 Application of NDT.....	13
8.1.1 General.....	13
8.1.2 Examination of weld quality by sample inspection.....	14
8.1.3 Imperfections revealed by sample inspection.....	14
8.2 Circumferential butt, branch, fillet and seal welds.....	15
8.2.1 Extent of testing.....	15
8.2.2 Dissimilar metal joints.....	17
8.2.3 Transverse cracks.....	17
8.3 Longitudinal welds.....	17
8.4 Testing methods.....	17
8.4.1 General.....	17
8.4.2 Quality level.....	17
8.4.3 Personnel qualification.....	18
8.4.4 Selection of NDT methods and testing techniques.....	18
8.4.5 Testing techniques and acceptance levels.....	19
8.5 Reports.....	19
8.6 Weld repairs.....	19
9 Final assessment and documentation.....	19
9.1 General.....	19
9.2 Final inspection.....	19

9.2.1	General	19
9.2.2	Visual inspection before the proof test.....	19
9.2.3	Visual inspection after the proof test.....	20
9.2.4	Review of the manufacturing documents	20
9.3	Proof test.....	20
9.3.1	General	20
9.3.2	Hydrostatic pressure test	20
9.3.3	Pneumatic pressure test	23
9.3.4	Other tests	25
9.3.5	Documentation of the proof test	25
9.4	Documentation	25
9.4.1	Final documentation package	25
9.4.2	Design and manufacturing documentation package	27
9.4.3	Operating instructions.....	27
9.4.4	Documentation for the purchaser	27
10	Declaration.....	27
Annex A	(informative) Declaration of compliance with EN 13480	28
A.1	Declaration for design	28
A.2	Declaration for fabrication, installation and testing	29
A.3	Declaration for compliance for piping with EN 13480.....	30
Annex B	(informative) Initial Leak Test	31
B.1	Initial Service Leak Test.....	31
B.1.1	General	31
B.1.2	Examination Procedure for service fluid gas or vapor	31
B.1.3	Examination Procedure for service fluid liquid	31
B.2	Initial Leak Test.....	31
Annex Y	(informative) History of EN 13480-5.....	32
Y.1	Differences between EN 13480-5:2017 and EN 13480-5:2024	32
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2014/68/EU aimed to be covered.....	33
Bibliography	34

European foreword

This document (EN 13480-5:2024) 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 2024, and conflicting national standards shall be withdrawn at the latest by December 2024.

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 13480-5:2017.

This new edition incorporates the Amendments which have been approved previously by CEN members, and the corrected pages up to Issue 2 without any further technical change. Annex Y provides details of significant technical changes between this European Standard and the previous edition.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, 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 recognized 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 <https://unm.fr/en/maintenance-agencies/maintenance-agency-en-13480/>. 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. Interpretation sheets will be posted on the website of the MHD.

Amendments to this new edition may be issued from time to time and then used immediately as alternatives to rules contained herein. These amendments will be consolidated within EN 13480:2024 in accordance with the maintenance system of EN 13480 series approved by CEN/BT Decision C172/2021.

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 organizations of the following countries are bound to implement this European Standard: 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.

1 Scope

This document specifies the requirements for inspection and testing of industrial piping as specified in EN 13480-1:2024 to be performed on individual spools or piping systems, including supports, designed in accordance with EN 13480-3:2024 and EN 13480-6:2024 (if applicable), and fabricated and installed in accordance with EN 13480-4:2024.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13480-1:2024, *Metallic industrial piping — Part 1: General*

EN 13480-2:2024, *Metallic industrial piping — Part 2: Materials*

EN 13480-3:2024, *Metallic industrial piping — Part 3: Design and calculation*

EN 13480-4:2024, *Metallic industrial piping — Part 4: Fabrication and installation*

EN 13480-6:2024, *Metallic industrial piping — Part 6: Additional requirements for buried piping*

CEN/TR 13480-7:2017, *Metallic industrial piping — Part 7: Guidance on the use of conformity assessment procedures*

EN 14917:2021, *Metal bellows expansion joints for pressure applications*

EN ISO 5817:2023, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections (ISO 5817:2023)*

EN ISO 9712:2022, *Non-destructive testing — Qualification and certification of NDT personnel (ISO 9712:2021)*

EN ISO 10893-5:2011,¹ *Non-destructive testing of steel tubes — Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections (ISO 10893-5:2011)*

EN ISO 17635:2016, *Non-destructive testing of welds — General rules for metallic materials (ISO 17635:2016)*

EN ISO 17640:2018, *Non-destructive testing of welds — Ultrasonic testing — Techniques, testing levels, and assessment (ISO 17640:2018)*

ISO 3057:1998, *Non-destructive testing — Metallographic replica techniques of surface examination*

¹ As impacted by EN ISO 10893-5:2011/A1:2020.