

STN	Kovové priemyselné potrubia Časť 4: Výroba a inštalácia	STN EN 13480-4 13 3410
------------	--	--

Metallic industrial piping - Part 4: Fabrication and installation

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. 09/24

Obsahuje: EN 13480-4:2024

Oznámením tejto normy sa ruší
STN EN 13480-4 (13 3410) z augusta 2018

139324

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2024
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii
v znení neskorších predpisov.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 13480-4

July 2024

ICS 23.040.01

Supersedes EN 13480-4:2017

English Version

**Metallic industrial piping - Part 4: Fabrication and
installation**

Tuyauteries industrielles métalliques - Partie 4:
Fabrication et installation

Metallische industrielle Rohrleitungen - Teil 4:
Fertigung und Verlegung

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

EN 13480-4:2024 (E)**Contents**

Page

European foreword.....	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 Symbols.....	9
5 General.....	9
5.1 Requirements on the manufacturer.....	9
5.2 Requirements on fabricators and installers of piping and supports	9
5.3 Requirements for fabrication and installation	9
5.4 Classification of piping	10
5.5 Material grouping	10
5.6 Tolerances	10
6 Cutting and bevelling.....	10
6.1 General.....	10
6.2 Identification of pressure parts	10
7 Bending and other forming	11
7.1 General.....	11
7.2 Heat treatment after cold forming.....	13
7.2.1 Flat products.....	13
7.2.2 Pipes.....	13
7.3 Heat treatment after hot forming.....	15
7.3.1 Material groups 1, 3, 4, 5 and 6	15
7.3.2 Material groups 8.1 and 8.2	15
7.3.3 Heat treatment after hot forming for material group 10.....	17
7.3.4 Heat treatment after hot forming for clad materials	17
7.4 Tolerances	17
7.4.1 Out-of-roundness of bends under internal pressure equal to, or greater than, the external pressure.....	17
7.4.2 Out-of-roundness of bends under external pressure and vacuum	18
7.4.3 Waves at bends	18
7.4.4 Start-up bulge of induction bends.....	19
7.5 Surface finish	19
8 Installation of piping.....	19
8.1 Fixing and alignment	19
8.2 Field run piping.....	20
8.3 Flanged or similar mechanical connections.....	21
8.3.1 Flange connections	21
8.3.2 Threaded connections.....	22
8.3.3 Couplings and compression fittings	22
8.4 Protection of ends of piping components.....	22
9 Welding.....	22
9.1 Welding personnel.....	22
9.2 Welding procedure specifications	22
9.3 Welding procedures.....	23
9.3.1 Verification of suitability.....	23

9.3.2	Application.....	24
9.4	Filler metals and auxiliary materials	24
9.5	Climatic conditions	24
9.6	Cleaning before and after welding	24
9.7	Joint preparation	25
9.8	Edge protection	25
9.9	Assembly for welding.....	25
9.10	Earthing.....	25
9.11	Performance of welding.....	26
9.11.1	Preheating.....	26
9.11.2	Striking marks	26
9.11.3	External welds	26
9.11.4	Dissimilar joints.....	26
9.12	Backing rings.....	26
9.13	Attachments.....	27
9.13.1	General	27
9.13.2	Temporary attachments	27
9.13.3	Permanent attachments.....	27
9.14	Post-weld heat treatment.....	27
9.14.1	General	27
9.14.2	Equipment.....	31
9.14.3	Temperature measurements	31
9.14.4	Controlling thickness	31
9.14.5	Rate of heating.....	33
9.14.6	Local heat treatment	33
9.14.7	Insulation.....	34
9.15	Weld identification.....	34
10	Adjustment and repair.....	34
10.1	General	34
10.2	Adjustment.....	34
10.2.1	Cold hammering.....	34
10.2.2	Adjustments by means of heat.....	34
10.2.3	Adjustment by welding.....	35
10.2.4	Adjustment by local forging.....	35
10.3	Weld repair	35
11	Marking and documentation	35
11.1	Marking of spools and components for installation	35
11.2	Marking and identification of installed piping	35
11.2.1	General	35
11.2.2	CE Marking of installed piping.....	36
11.2.3	Technical identification of installed piping	36
12	Additional requirements	37
12.1	Cleaning.....	37
12.2	Temporary preservation	37
12.3	External corrosion protection	37
12.4	Thermal and acoustic insulation	37
12.5	Connections for static electricity	38
Annex A	(informative) Contamination and surface quality of stainless steel.....	39
A.1	Introduction	39
A.2	Protection.....	39
A.2.1	Handling.....	39
A.2.2	During fabrication and installation	39
A.3	Controlled cleaning methods	40

EN 13480-4:2024 (E)

A.4	Chemical treatments.....	40
A.4.1	Acid pickling.....	40
A.4.2	Decontamination, passivation.....	40
A.5	Preparing for shipment.....	41
Annex B (normative)	Dimensional tolerances for fabricated spools	42
Annex C (informative)	Example for the extension of the P value	44
Annex Y (informative)	History of EN 13480-4	46
Y.1	Differences between EN 13480-4:2017 and EN 13480-4:2024	46
Annex ZA (informative)	Relationship between this European Standard and the Essential Requirements of EU Directive 2014/68/EU aimed to be covered.....	47
Bibliography	49

European foreword

This document (EN 13480-4:2024) 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 13480-4:2017.

This new edition incorporates the Amendments which have been approved previously by CEN members, and the corrected pages up to Issue 1 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.

EN 13480-4:2024 (E)

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 fabrication and installation of piping systems, including supports, designed in accordance with EN 13480-3:2024.

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 10204:2004, *Metallic products — Types of inspection documents*

EN 12952-5:2021, *Water-tube boilers and auxiliary installations — Part 5: Workmanship and construction of pressure parts of the boiler*

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 13480-5:2024, *Metallic industrial piping — Part 5: Inspection and testing*

EN ISO 3834-3:2021, *Quality requirements for fusion welding of metallic materials — Part 3: Standard quality requirements (ISO 3834-3:2021)*

EN ISO 4063:2023, *Welding, brazing, soldering and cutting — Nomenclature of processes and reference numbers (ISO 4063:2023)*

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 9606-1:2017, *Qualification testing of welders — Fusion welding — Part 1: Steels (ISO 9606-1:2012, including Cor 1:2012 and Cor 2:2013)*

EN ISO 13920:1996, *Welding — General tolerances for welded constructions — Dimensions for lengths and angles — Shape and position (ISO 13920:1996)*

EN ISO 14732:2013, *Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials (ISO 14732:2013)*

EN ISO 15609-1:2019, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding (ISO 15609-1:2019)*

EN ISO 15609-2:2019, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 2: Gas welding (ISO 15609-2:2019)*

EN ISO 15609-3:2004, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 3: Electron beam welding (ISO 15609-3:2004)*

EN ISO 15609-4:2009, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 4: Laser beam welding (ISO 15609-4:2009)*

EN 13480-4:2024 (E)

EN ISO 15609-5:2011, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 5: Resistance welding (ISO 15609-5:2011, Corrected version 2011-12-01)*

EN ISO 15609-6:2013, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 6: Laser-arc hybrid welding (ISO 15609-6:2013)*

EN ISO 15610:2024, *Specification and qualification of welding procedures for metallic materials — Qualification based on tested welding consumables (ISO 15610:2024)*

EN ISO 15611:2024, *Specification and qualification of welding procedures for metallic materials — Qualification based on previous welding experience (ISO 15611:2024)*

EN ISO 15612:2018, *Specification and qualification of welding procedures for metallic materials — Qualification by adoption of a standard welding procedure specification (ISO 15612:2018)*

EN ISO 15613:2004, *Specification and qualification of welding procedures for metallic materials — Qualification based on pre-production welding test (ISO 15613:2004)*

EN ISO 15614-1:2017,¹ *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2017)*

EN ISO 17663:2009, *Welding — Quality requirements for heat treatment in connection with welding and allied processes (ISO 17663:2009)*

CEN ISO/TR 15608:2017, *Welding — Guidelines for a metallic materials grouping system (ISO/TR 15608:2017)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN

¹ As impacted by EN ISO 15614-1:2017/A1:2019.