PD CEN/TR 13480-7:2017

BSI Standards Publication

# Metallic industrial piping

Part 7: Guidance on the use of conformity assessment procedures



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# National foreword

This British Standard is the UK implementation of CEN/TR 13480-7:2017. It supersedes PD CEN/TR 13480-7:2002, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PVE/10, Piping systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.


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TECHNICAL REPORT

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# CEN/TR 13480-7

July 2017

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English Version

# Metallic industrial piping - Part 7: Guidance on the use of conformity assessment procedures

Tuyauteries industrielles métalliques - Partie 7 : Guide pour l'utilisation des procédures d'évaluation de la conformité

Metallische industrielle Rohrleitungen - Teil 7: Anleitung für den Gebrauch des Konformitätsbewertungsverfahrens

This Technical Report was approved by CEN on 19 June 2017. It has been drawn up by the Technical Committee CEN/TC 267.

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## European foreword

This document (CEN/TR 13480-7:2017) has been prepared by Technical Committee CEN/TC 267 "Industrial piping and pipelines", the secretariat of which is held by AFNOR.

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 supersedes CEN/TR 13480-7:2002.

EN 13480, *Metallic industrial piping* consists of eight interdependent and not dissociable Parts which include:

— *Part 1: General*

— *Part 2: Materials*

— *Part 3: Design*

— *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*

The significant technical changes between this Technical Report and the previous edition are:

— a general revision of this document to comply with PED 2014/68/UE;

— in Table A.1, inclusion of new Modules designation and addition of the Module G ;

— in sub-clause A.3, revision of the documentation ;

— in Table B.2, update of cross references for detailed requirements in EN 13480-4:2017 and EN 13480-5:2017.

NOTE These technical changes are the significant technical changes but it is not an exhaustive list of all modifications.

# 1 Scope

This Technical Report gives guidance on the use of conformity assessment procedures for industrial piping in relation to EN 13480.

# 2 Normative references

Not applicable.

# 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

**3.1**
**responsible authority**
competent organization which is independent of the manufacturer

Note 1 to entry: For application within the jurisdiction of the European Union this organization may be a Notified Body or a user inspectorate where appropriate, according to module chosen and designated by a member state. For the purpose of this standard, all these organizations have been collectively termed "responsible authorities".

**3.2**
**fluid**
gases, liquids and vapours in pure phase as well as mixtures thereof

Note 1 to entry: A fluid may contain a suspension of solids.

# 4 Application of the PED

## 4.1 General

According to the PED, the manufacturer shall determine for each industrial piping and pipeline:

a) the category of the industrial piping and pipeline;

b) the procedures to be applied to assess conformity of the industrial piping and pipeline with the requirements of the PED.

## 4.2 Conformity assessment procedures

### 4.2.1 General

The manufacturer shall subject each item of equipment to a procedure to assess the conformity with the essential requirements of the PED. Annex A describes the conformity assessment requirements of the PED. It is applicable to piping systems which are to be installed in an EU Member State.

### 4.2.2 Choice of conformity assessment procedures

The conformity assessment procedures to be applied to an item or pressure equipment with a view to affixing the CE marking shall be determined by the category in which the equipment is classified. The procedures that are to be applied for the various categories are given in Table A.1.

The manufacturer has the option of selecting between a procedure of conformity assessment involving a certified quality assurance system (if available) and one which does not.

The manufacturer may choose to apply one of the procedures which apply to a higher category.

#### 4.2.3 Conformity assessment procedures and the involvement of Responsible Authorities

The manufacturer is responsible for ensuring that the requirements of this Technical Report, including inspection and testing activities, are fully applied. If a CE marking is sought, it is a requirement of the PED that (in many cases) there is a supplementary involvement of a Responsible Authority (e.g. Notified Body) to ensure the requirements of the PED are met.

The kind and extent of responsible authority involvement in inspection and testing activities will depend upon the conformity assessment procedure chosen by the manufacturer. For each appropriate conformity assessment procedure the participation is indicated in Table B.1.

Annex B has been provided in order to give guidance to the manufacturer so that he may be aware of the various stages where a responsible authority may be involved. Details of the inspection and testing activities are described in subsequent subclauses, the reference of which is given in Table B.1.

## 5 Subcontracting

The manufacturer is responsible for the fabrication and the installation, even if this work will be subcontracted to other fabricators and/or installers.

Where the manufacturer is producing the equipment under a conformity assessment procedure requiring intervention of a responsible authority, the manufacturer shall inform the responsible authority of his intention to subcontract so that the responsible authority has the opportunity to take part in the subcontractor surveillance.

Where the manufacturer is producing the equipment under a conformity assessment procedure based on quality assurance, e.g. D, H, H1, the controls the manufacturer applies over subcontractors shall be described in his appropriate quality system.

# Annex A
(informative)

# Conformity of industrial piping to the essential safety requirements of Directive 2014/68/EU (Pressure equipment directive)

## A.1 Introduction

This annex describes the conformity assessment requirements of Directive 2014/68/EU. It is applicable to piping systems which are to be installed in an EU Member State.

In the EU Member States, the authorized inspection bodies are identical to the notified bodies. [1)]

## A.2 Conformity assessment procedure

Where piping is subject to the conformity assessment procedure, the manufacturer shall identify the appropriate piping category based upon the classification of the piping as defined in EN 13480-1:2017, Table 5.1-1, and subsequently shall select one of the conformity assessment modules available for that piping category in accordance with Table A.1.

NOTE The conformity assessment procedure attributed to a higher category can be applied to piping classified in a lower category.

The activities to be performed by the parties involved in each of the conformity assessment procedures during design and fabrication/installation of the piping in accordance with this European Standard are summarized in Annex B.

**Table A.1 — Piping categories and conformity assessment modules**

| **Category (PED)** | **Category (**EN 13480–1**)** | **Conformity assessment module considered in** EN 13480 | **Conformity assessment module not considered in** EN 13480 |
|---|---|---|---|
| — | 0 | — | — |
| III | III | B (design type)+D, B (design type)+F, H | B (production type)+E, B (production type)+C2 |
| II | II | A2, D1 | E1 |
| I | I | A | — |
| If the manufacturer selected a module applicable to PED Category IV, the following applies:<br>If module G is selected, the columns for B (design type) and F in Table B.2 shall be used.<br>If module H1 is selected, the columns H (without the requirements DESIGN) and B (design type) in Table B.2 shall be used. | | | |

1) For intervention of user inspectorates, see Article 16 of Directive 2014/68/EU (Pressure Equipment Directive).

## A.3 Certification and CE marking

### A.3.1 Declaration of conformity, CE marking

A declaration of conformity and CE marking (see EN 13480-4) shall be required if piping of Categories I, II and III is placed at a market in a country where the PED applies (see Table A.2).

### A.3.2 Notified body's identification mark and certificate

Where appropriate, the notified body's identification number shall be applied adjacent to the CE marking. Under module F, on satisfactory completion of final assessment the notified body shall issue an EC certificate of conformity.

**Table A.2 — Declaration of conformity of final inspection for piping (form)**

| **DECLARATION/CERTIFICATE OF CONFORMITY FOR PIPING** |
|---|
| **Description of piping** |
| Identification no./drawings no. |
| manufactured by<br>*(company)* |
| for<br>*(plant/purchaser/purpose)* |
| Design conditions:<br>PS [bar]<br>$TS_{max}$, $TS_{min}$ [°C]<br>category<br>conformity assessment procedure<br>name, address and number of the notified body<br>Reference to EU type-examination certificate-design type, EU design-examination certificate or certificate of conformity as appropriate |
| DECLARATION/ OF DESIGN COMPLIANCE (see EN 13480–5, Figure A.1) no. /by |
| DECLARATION of COMPLIANCE for FABRICATION, INSTALLATION AND TESTING (see EN 13480–5, Figure A.2) no./by |
| **We hereby declare that the above piping conforms with the requirements of the Directive 2014/68/EU (Pressure Equipment Directive) and** EN 13480:2017**. The fulfilment of the applicable essential safety requirements set out in Annex I of the PED has been demonstrated.**<br><br>Manufacturer _____ _____ _____<br>Place and Date Name and Function Signature |

# Annex B
(informative)

# Summary of inspection and testing activities

The required involvement of the parties concerned is indicated in Table B.2 by letters in the appropriate conformity assessment columns as follows (see Table B.1 for relations between Actions and Modules):

(M) action performed by fabricator, where specified in his manufacturing documents;

M action performed by fabricator/installer;

$M/RA_c$ action performed by fabricator/installer and checked by responsible authority;

$M/RA_i$ action performed by fabricator/installer and monitored by responsible authority. Amount depends on complexity and familiarity of the piping fabricator/installer with that type of piping manufacture and the knowledge and experience of the responsible authority with the manufacturer;

$M/RA_m$ action performed by fabricator/installer and monitored by responsible authority during visits within the quality system. Amount depends on complexity and familiarity of the piping fabricator/installer with that type of piping manufacture and the knowledge and experience of the responsible authority with the manufacturer's quality system;

$M/RA_q$ action performed by fabricator/installer and checked by responsible authority during assessment of quality system/type examination;

RA action performed by responsible authority.

**Table B.1 — Relation between Actions and Modules**

| Action | Typically applied for Modules |
|---|---|
| M | all Modules |
| $M/RA_c$ | B + F |
| $M/RA_i$ | A2 |
| $M/RA_m$ | D1, D, H |
| $M/RA_q$ | D1, D, H |
| RA | all Modules whithout A |

**Table B.2 — Summary of participation of the manufacturer and the authorized inspection body with respect to conformity assessment procedures**

| | | | | | | **Piping category** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **I** | **II** | | | **III** | | | | |
| | | | | | | Internal control of manufacture | Internal manufacturer checks and monitoring final verification | Production quality assurance | Product quality assurance | Design examination | Production quality assurance | Type examination and product quality assurance/conformity to type | Product verification | Full quality assurance |
| | | | | **Cross references for detailed requirements** | | **Module** | | | | | | | | |
| | | **DOMAIN** | **INSPECTION OPERATIONS** | EN 13480–4:2017 | EN 13480–5:2017 | **A** | **A2** | **D1** | **E1** | **B (design type)** | **D[a]** | **B (production type) + C2 B (production type)+ E** | **F[a]** | **H** |
| | QUALITY SYSTEM AND QUALIFICATION | Assessment and reassessment of quality system and periodic audits of quality system | For fabrication/ installation, final inspection and testing | — | — | — | — | RA | Not considered in EN 13480 | — | RA | Not considered in EN 13480 | — | — |
| | | | For design, fabrication/ installation, final inspection | — | — | — | — | — | | — | — | | — | RA |
| | | Technical capability of manufacturer/ fabricator | Base material manufacturer | — | — | See EN 13480–2:2017 | | | | | | | | |
| | | | Pipework fabricator | 5.1 | — | — | RA | — | | — | — | | RA | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design | DESIGN SPECIFICATION | Design | Validate technical documentation for design/manufacture and operation | — | 9.4.2 | M | M | M | Not considered in EN 13480 | M | M | Not considered in EN 13480 | M | M |
| | | Design validation | Validation that the design data and manufacturing schedule complies with requirements of this standard and other contractual requirements | — | 6 | — | M/RA$_i$ | — | | M | — | | — | M/RA$_q$ |
| | | Design approval | Issuing a Design Examination Certificate | — | A.1 | — | — | — | | RA | — | | — | — |
| Fabrication/Installation specification | WELDING QUALIFICATION | Welding procedure specification | Verification of appropriate and suitable qualified specifications for fabrication and installation | 9.2 | — | M | M/RA$_i$ | M/RA$_q$ | Not considered in EN 13480 | M/RA$_c$ | M/RA$_q$ | Not considered in EN 13480 | RA | M/RA$_q$ |
| | | Approval of welding procedure qualification | Verification that qualifications of WPS are suitable to the field of operation | 9.3 | — | M | M/RA$_i$ | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ | | RA | M/RA$_q$ |
| | | Approval of welders and operators qualification | Verification according to the field of operation | 9.1 | — | M | M/RA$_i$ | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ | | RA | M/RA$_q$ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fabrication/Installation specification | FORMING | Approval of procedures and examination | Verify approval for forming operation to be carried out | 7.1 | — | M | M/RA$_i$ | M/RA$_q$ | Not considered in EN 13480 | M/RA$_c$ | M/RA$_q$ | Not considered in EN 13480 | RA | M/RA$_q$ |
| | | | Verify procedures available for cold and hot forming for the materials in question | 7.1 | — | M | M/RA$_i$ | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ | | RA | M/RA$_q$ |
| | | | Verify tolerances and quality of formed parts | 7.4 | 7.2 | M | M/RA$_i$ | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ | | RA | M/RA$_q$ |
| | MATERIALS AND COMPONENTS SUPPLIED (received inspections | Identification | Verification that all materials and components supplied are appropriately identified | 5.2 | — | M | M | M | Not considered in EN 13480 | — | M | Not considered in EN 13480 | M/RA$_i$ | M |
| | | Correct materials and components | Ensure that all dimensions, ratings and material type are as required in the relevant documents | 5.2 | — | M | M | M | | — | M | | M | M |
| | | | Ensure that all materials, prefabricated pipework and components are undamaged | 5.2 | — | M | M | M | | — | M | | M | M |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fabrication/Installation specification | MATERIALS AND COMPONENTS SUPPLIED (received inspections) | Marking transfer | Verification of the transfer of marking of materials and identification of pipework and components by appropriate method | 6.2 | — | M | M | M | Not considered in EN 13480 | — | M | Not considered in EN 13480 | $M/RA_i$ | M |
| | | Review of material certificate | Ensure certificate type is correct and results complies with materials specification | — | 7.2.2 | M | $M/RA_i$ | M | | — | $M/RA_m$ | | $M/RA_i$ | $M/RA_m$ |
| | | Components supplied | Verification that the chemical and physical requirements are met including heat treatment, adequate protection and any additional request | — | 7.2 | M | $M/RA_i$ | M | | — | $M/RA_m$ | | $M/RA_i$ | $M/RA_m$ |
| Fabrication/Installation specification | IN-PROCESS EXAMINATION | Weld edge and preparation for welding | Verification of compliance with procedures and drawing including: material type, main dimensions, alignment, position and orientation of branches and nozzles, attachments, anchors | 6.1 | 7.3 | M | M | M | Not considered in EN 13480 | — | M | Not considered in EN 13480 | $M/RA_i$ | M |
| | | | Examination of weld set-up including cut edges, cleanliness, tack welds | 9.7 | 7.3 | M | $M/RA_i$ | M | | — | M | | $M/RA_i$ | $M/RA_q$ |
| | | Welding, including adjustment and repair | Verification that WPS are being complied with | 9.3 | | M | $M/RA_i$ | $M/RA_q$ | | — | $M/RA_m$ | | $M/RA_i$ | $M/RA_q$ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fabrication/Installation specification | IN-PROCESS EXAMINATION | Welding, including adjustment and repair | Verify temporary attachments are welded according to approved procedures | | 7.3 | M | M | M | Not considered in EN 13480 | | M | Not considered in EN 13480 | M | M |
| | | | Visual examination of completed welds (prior to any post-weld heat treatment if possible) | — | 7.3 | M | M/RA$_i$ | M | | | M | | M/RA$_c$ | M/RA$_q$ |
| | | | Verify that welds are correctly identified in accordance with this EN | | 7.3 | M | M | M | | | M | | M | M |
| | | | Verify temporary attachments are properly removed and permanent attachment welds are according to drawing | | 7.3 | M | M/RA$_i$ | M | | | M | | M/RA$_i$ | M/RA$_q$ |
| Fabrication/Installation specification | INSTALLATION | Installation of pipework including adjustment and repair | Verification of conformance to drawing for supports, anchors position, type and marking of valves, cold pull earthing | 8 | 9.1 | M | M | M | Not considered in EN 13480 | — | M | Not considered in EN 13480 | M/RA$_c$ | M |
| | | Specific requirements for pipework | Take off points are marked on permanent side indicating the fluid contained | | — | M | M | M | | — | M | | M | M |
| | HEAT TREATMENT | Post-forming and post-weld heat treatment | Verify that heat treatment carried out is in accordance with material standard and procedures | 7<br>9.14 | 7.4 | M | M/RA$_i$ | M/RA$_m$ | | — | M/RA$_m$ | | M/RA$_c$ | M/RA$_q$ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Testing | NON DESTRUCTIVE TESTING | Visual examination | Prior to pressure test and application of coating/insulation: verification that fabrication has been completed in accordance with design specification | — | 8.1.1 | M | M/RA$_i$ | M/RA$_m$ | Not considered in EN 13480 | — | M/RA$_m$ | Not considered in EN 13480 | M/RA$_c$ | M/RA$_m$ |
| | | Approval of NDT procedures | Verify that procedures meet the requirements of this standard | — | 8 | M | M/RA$_i$ | M/RA$_q$ | | — | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ |
| | | NDT personnel | Verification of validity of operators and supervisors qualification for the relevant NDT | — | 8.4.3 | M | M/RA$_i$ | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ |
| | | Non-destructive testing | Carry out RT | — | 8.4 | M | M | M | Not considered in EN 13480 | — | M/RA$_q$ | Not considered in EN 13480 | M | M/RA$_q$ |
| | | | Carry out UT | — | 8.4 | M | M | M | | — | M/RA$_q$ | | M | M/RA$_q$ |
| | | | Carry out MT | — | 8.4 | M | M | M | | — | M/RA$_q$ | | M | M/RA$_q$ |
| | | | Carry out PT | — | 8.4 | M | M | M | | — | M/RA$_q$ | | M | M/RA$_q$ |
| | | | Carry out other NDT | — | 8.4 | M | M | M | | — | M/RA$_q$ | | M | M/RA$_q$ |
| | | Extent of NDT and reports | Review NDT reports for compliance with procedure | — | 8.4.4 | M | M/RA$_i$ | M/RA$_m$ | | — | M/RA$_m$ | | M/RA$_c$ | M/RA$_m$ |
| | | | Review NDT extent for compliance with the requirements of the manufacturing schedule or this standard | — | 9.2.4 | M | M/RA$_i$ | M/RA$_m$ | | — | M/RA$_m$ | | M/RA$_c$ | M/RA$_m$ |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Final assessment | PROOF TEST | Calibration of measuring equipment | Examination of the calibration reports for the measuring equipment used in pressure tests, dimensional and other acceptance examination or tests | — | 9.3 | M | M/RA$_i$ | M/RA$_m$ | Not considered in EN 13480 | — | M/RA$_q$ | Not considered in EN 13480 | M/RA$_c$ | M/RA$_q$ |
| | | Pressure test (hydrostatic) | Verification of test procedure and witness of pressure test, visual examination | — | 9.1, 9.3 | M | M/RA$_i$ | M/RA$_m$ | | — | M/RA$_m$ | | M/RA$_c$ | M/RA$_m$ |
| | | Pressure test (pneumatic) | Verification of test procedure, additional safety requirements, additional NDT, witness pressure test, visual examination | — | 9.1, 9.3.3 | M | M/RA$_i$ | M/RA$_m$ | | — | M/RA$_m$ | | M/RA$_c$ | M/RA$_m$ |
| Final assessment | FINAL INSPECTION | Final visual examination | Verification of dimensions and orientations, not previously verified | — | 9.2.2 | | | | | — | M/RA$_m$ | Not considered in EN 13480 | M/RA$_c$ | M/RA$_m$ |
| | | Documentation | Verification that manufacturing documentation complies with applicable requirements of this standard | — | 9.2.4 A.2 | | | | | — | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ |
| | | Final report | Issue and verification of a design and manufacturing documentation package | | 9.4.1 9.4.2 | | | | | — | M/RA$_q$ | | M/RA$_c$ | M/RA$_q$ |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CONFORMITY | Marking | Verification that required stamping (manufacturer's mark, authorized inspection body's mark) has been made | M | M/RA$_i$ | M/RA$_m$ | Not considered in EN 13480 | M/RA$_q$ | Not considered in EN 13480 | — | M/RA$_q$ | Not considered in EN 13480 | M/RA$_c$ | M/RA$_q$ |
| | | Declaration of conformity | Manufacturer's declaration of conformity of the piping | M | M/RA$_i$ | M/RA$_m$ | M | M | | — | M | | M | M |
| | | Certificate of conformity | Authorized inspection body's certificate of conformity of the test carried out | M | M/RA$_i$ | M/RA$_q$ | — | — | | — | — | | RA | — |
| a Require combination with module B design examination. | | | | | | | | | | | | | | |

# Bibliography

[1] EN 13480-1:2017, *Metallic industrial piping - Part 1: General*

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

[3] EN 13480-4:2017, *Metallic industrial piping - Part 4: Fabrication and installation*

[4] EN 13480-5:2017, *Metallic industrial piping - Part 5: Inspection and testing*

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