

Metallic industrial piping —

Part 7: Guidance on the use of conformity assessment procedures

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National foreword

This Published Document is the official English language version of TR 13480-7:2002.

The UK participation in its preparation was entrusted to Technical Committee PVE/10, Industrial piping, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online

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English version

**Metallic industrial piping – Part 7: Guidance on the use of
conformity assessment procedures**

This Technical Report was approved by CEN on 22 May 2002. It has been drawn up by the Technical Committee CEN/TC 267.

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Foreword

This document (CEN/TR 13480-7:2002) has been prepared by Technical Committee CEN/TC 267 "Industrial piping and pipelines", the secretariat of which is held by AFNOR.

This European Standard consists of the following Parts:

- $\frac{3}{4}$ *Part 1: General*
- $\frac{3}{4}$ *Part 2: Materials*
- $\frac{3}{4}$ *Part 3: Design*
- $\frac{3}{4}$ *Part 4: Fabrication and installation*
- $\frac{3}{4}$ *Part 5: Testing and Inspection*
- $\frac{3}{4}$ *Part 6: Additional requirements for buried piping*
- $\frac{3}{4}$ *Part 7: Guidance on the use of conformity assessment procedures*

1 Scope

This Technical Report gives guidance on the use of conformity assessment procedures for industrial piping and pipelines as covered by Article 1, § 2.1.1 of the Pressure Equipment Directive (PED). The PED requires all pressure equipment falling within its scope to have its design and manufacture assessed for conformity in accordance with a series of conformity assessment procedures given in Article 10 of the PED. These procedures are described in detail in Annex III of the PED to which reference must be made in order to ensure compliance. The following summary is given for guidance purposes only.

2 Normative references

This Technical Report incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Technical Report only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 9000:2000, *Quality management systems — Fundamentals and vocabulary (ISO 9000:2000)*.

EN ISO 9001:2000, *Quality management systems — Requirements (ISO 9001:2000)*.

3 Terms and definitions

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

3.1 responsible authority

competent organisation which is independent of the manufacturer. For application within the jurisdiction of the European Union this organisation may be a Notified Body, a recognised third-party organisation or a user inspectorate where appropriate, according to module chosen and designated by a member state. For the purpose of this standard all these organisations have been collectively termed "responsible authorities"

3.2 fluid

gases, liquids and vapours in pure phase as well as mixtures thereof. 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 hazard 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 Classification of pressure equipment in hazard categories

For the purpose of classification of pressure equipment in hazard categories, fluids (gas or liquid) are divided into two groups:

- 1) Group 1 comprises dangerous fluids (under Council Directive 67/548/EEC (27 June 1967), Article 2 (2)), i.e. fluids defined as:
 - $\frac{3}{4}$ explosive;
 - $\frac{3}{4}$ extremely flammable;
 - $\frac{3}{4}$ highly flammable;
 - $\frac{3}{4}$ flammable (where the maximum allowable temperature is above flashpoint);
 - $\frac{3}{4}$ very toxic;
 - $\frac{3}{4}$ toxic;
 - $\frac{3}{4}$ oxidizing.
- 2) Group 2 comprises all other fluids not referred to in Group 1.

In combination with the internal volume (V) and/or the maximum allowable pressure (PS) of the vessel this leads to 4 specific cases:

- a) Fluids in Group 1; Industrial piping for gases, liquefied gases, gases dissolved under pressure, vapours and also liquids whose vapour pressure at the maximum allowable temperature is greater than 0,5 bar above normal atmospheric pressure (1 013 mbar), within the following limits: DN > 25;
- b) Fluids in Group 2; Industrial piping, liquefied gases, gases dissolved under pressure, vapours and also liquids whose vapour pressure at the maximum allowable temperature is greater than 0,5 bar above normal atmospheric pressure (1 013 mbar), within the following limits: DN > 32 and PS x DN > 1 000 bar;
- c) Fluids in Group 1; Industrial piping for liquids having a vapour pressure at the maximum allowable temperature of not more than 0,5 bar above normal atmospheric pressure (1 013 mbar), within the following limits: DN > 25 and PS x DN > 2 000 bar;
- d) Fluids in Group 2; Industrial piping for liquids having a vapour pressure at the maximum allowable temperature of not more than 0,5 bar above normal atmospheric pressure (1 013 mbar), within the following limits: PS > 10 bar and DN > 200 and PS x DN > 5 000 bar.

Industrial piping are classified in hazard categories I to III according to one of the relevant cases a) to d) and their nominal diameter and maximum allowable pressure. The classification has been defined in the Figures A.1 to A.4.

4.3 Conformity assessment procedures

4.3.1 General

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

4.3.2 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 hazard category in which the equipment is classified. The procedure that are to be applied for the various hazard categories are given in table B.2-1.

The piping 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 also choose to apply one of the procedures which apply to a higher category, if available.

4.3.3 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 C.1.

Annex C 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 sub-clauses, the reference of which is given in Table C.1.

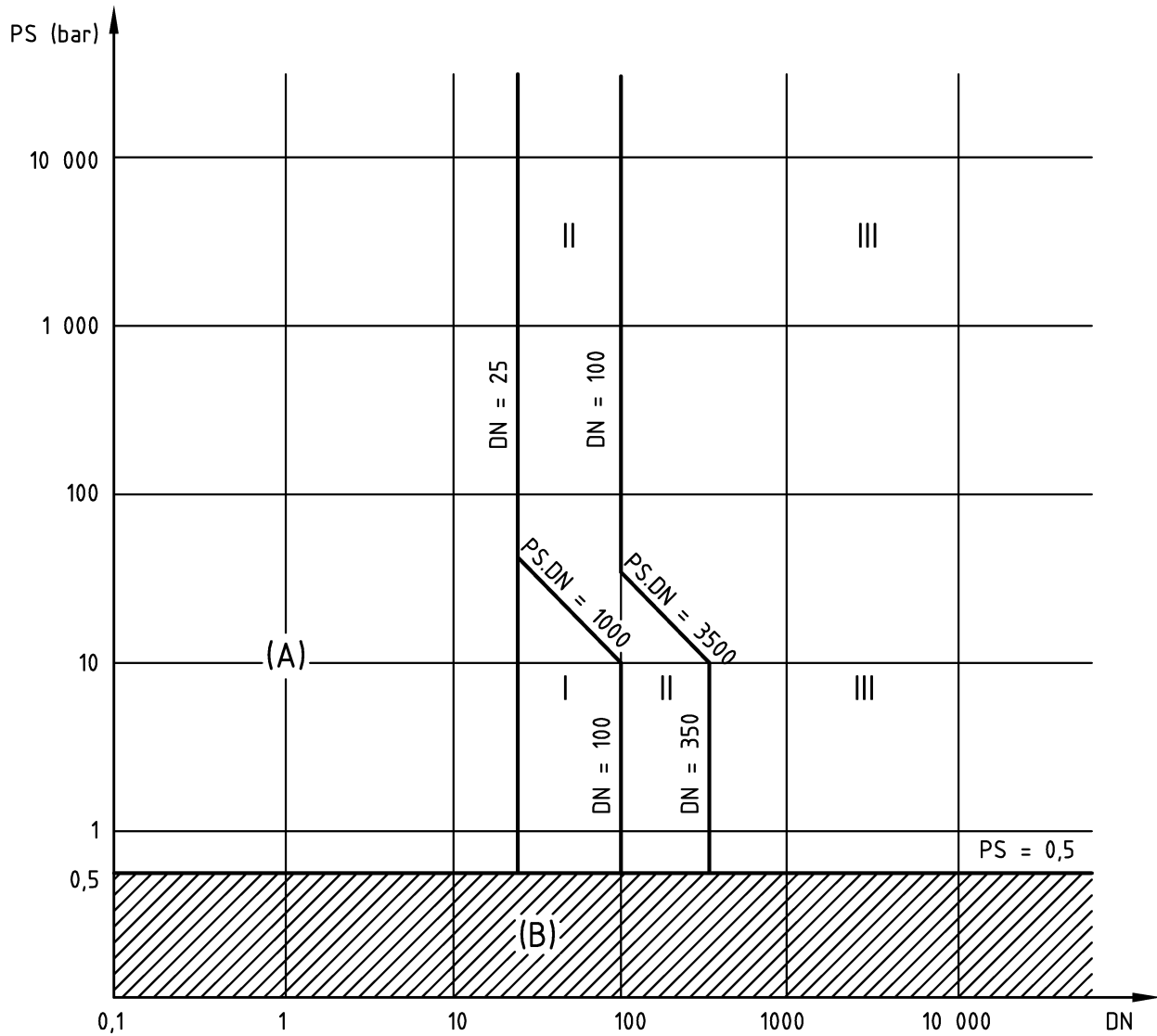
5 Subcontracting

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.

NOTE 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

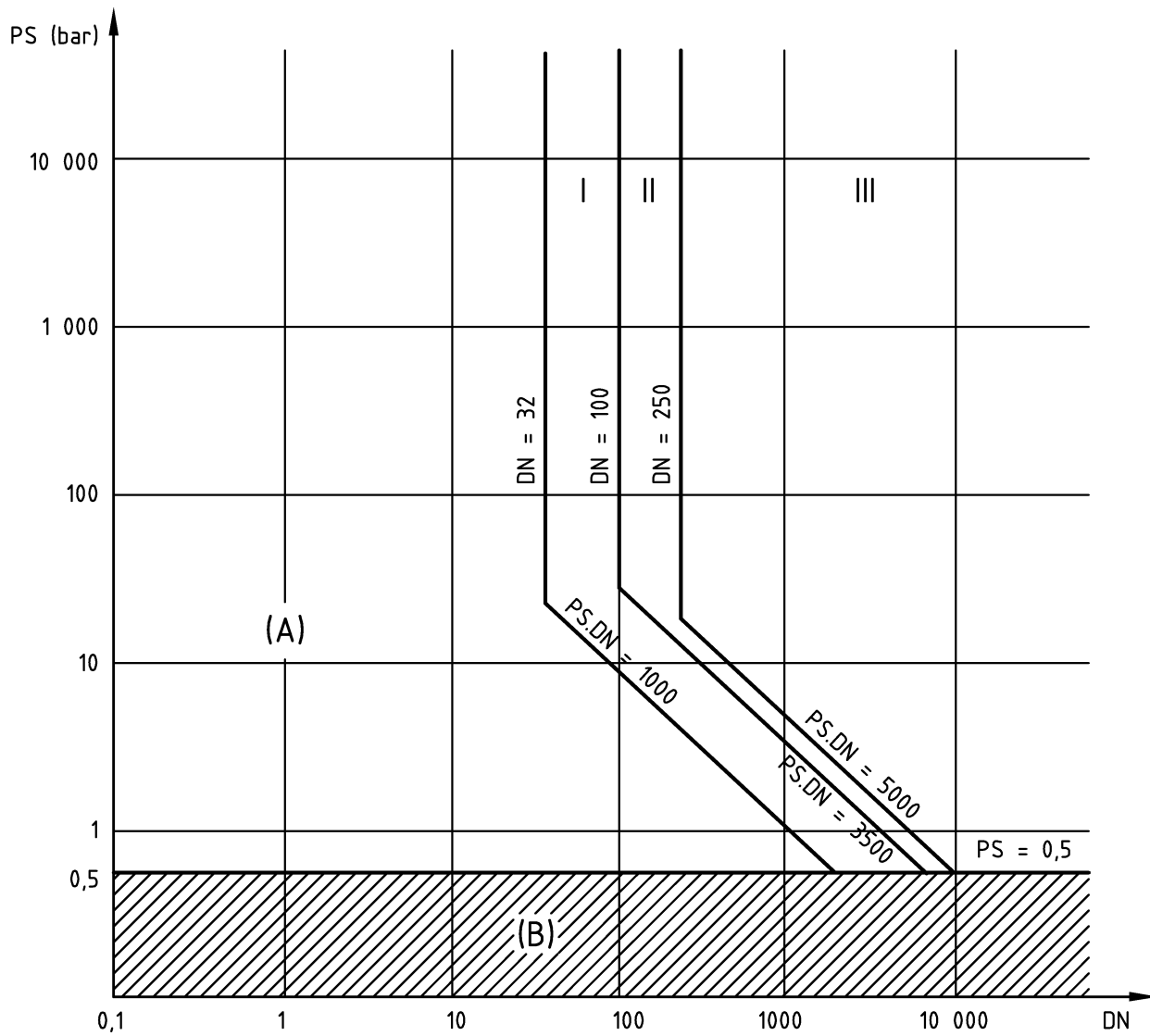
Conformity assessment tables



Gases, liquefied gases, gases dissolved under pressure, vapours and those liquids whose vapor pressure at the maximum allowable temperature is greater than 0,5 bar above normal atmospheric pressure (1013 mbar) for fluids in group 1.

(A) see 4.2 and (B) see 4.3

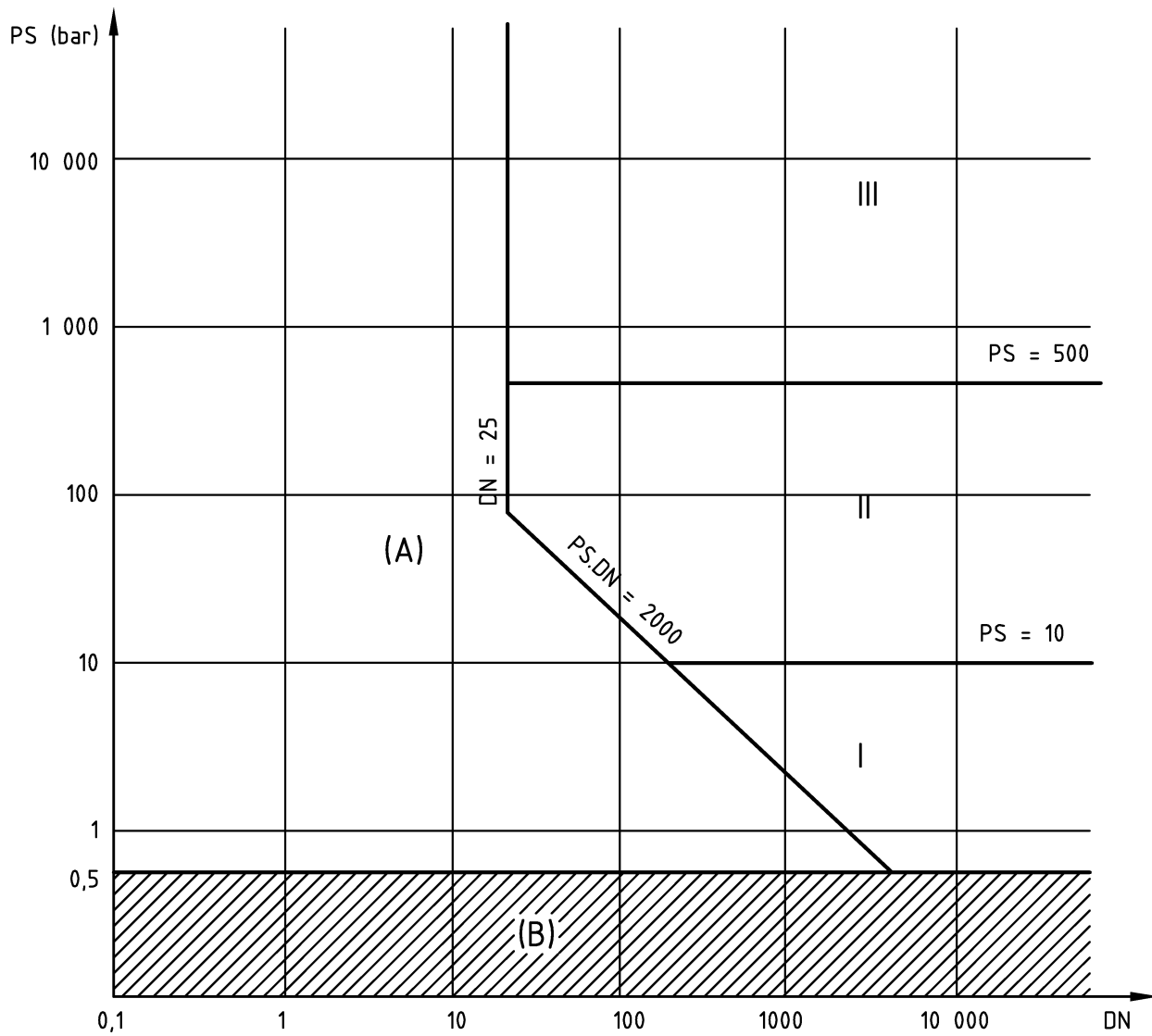
Figure A.1 — Classification of piping system for group 1 gases



Gases, liquified gases, gases dissolved under pressure, vapours and those liquids whose vapour pressure at the maximum allowable temperature is greater than 0,5 bar above normal atmospheric pressure (1013 mbar) for fluids in group 2.

(A) see 4.2 and (B) see 4.3

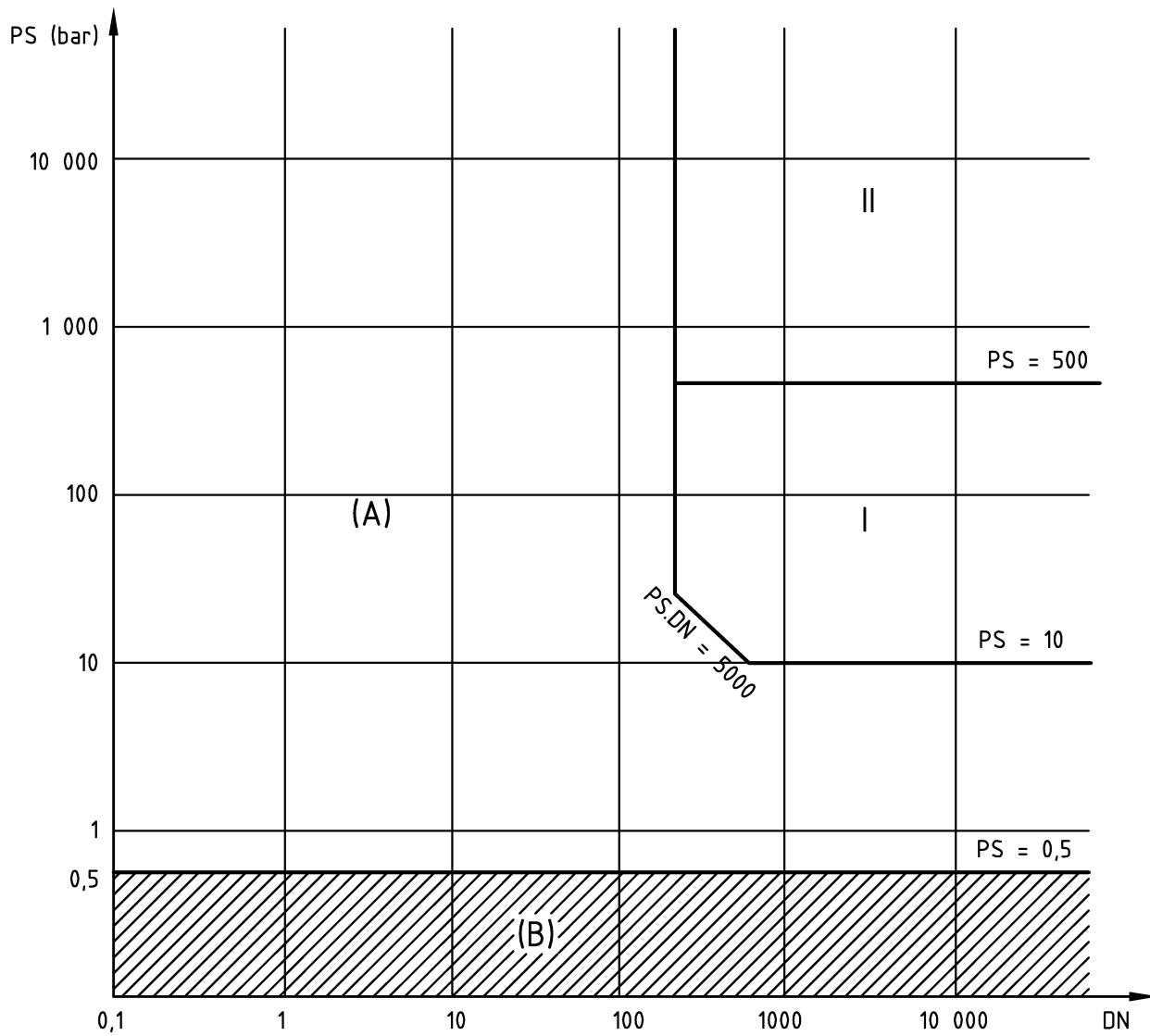
Figure A.2 — Classification of piping system for group 2 gases



Liquids having a vapour pressure at the maximum allowable temperature of not more than 0,5 bar above normal atmospheric pressure (1013 mbar) for fluids in group 1.

(A) see 4.2 and (B) see 4.3

Figure A.3 — Classification for piping system for group 1 liquids



Liquids having a vapor pressure at the maximum allowable temperature of not more than 0,5 bar above normal atmospheric pressure (1013 mbar) for fluids in group 2.

(A) see 4.2 and (B) see 4.3

Figure A.4 — Classification for piping system for group 2 liquids

Annex B

Conformity of industrial piping to the essential safety requirements of Directive 97/23/EC (Pressure equipment directive)

B.1 Introduction

This annex describes the conformity assessment requirements of Directive 97/23/EC. 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 bodies¹⁾.

B.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 table 4.1-1 of prEN 13480-1 and subsequently shall select one of the conformity assessment modules available for that piping category in accordance with table B.2-1.

NOTE The conformity assessment procedure attributed to a higher category may 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 summarised in Annex C.

Table B.2-1 — Piping categories and conformity assessment modules

Category (PED)	Piping class (EN 13480)	Conformity assessment module
–	0	–
III	III	B1+D, B1+F, B+E ^a , B+C1 ^a , H
II	II	A1, D1, E1 ^a
I	I	A
^a Not considered in EN 13480		

B.3 Management of manufacture

The conformity assessment procedures specified in Annex C provide the manufacturer with a choice between verification of conformance by an authorized inspection body or conformance by operating an approved quality management system.

¹⁾ For intervention of user inspectorates see Article 14 of Directive 97/23/EC (Pressure Equipment Directive).

B.4 Design examination and certification

Under module B1, the manufacturer should submit an application for design examination to the notified body and enclose the design data given in clause 6.2 of prEN 13480-5 and the manufacturer's declaration of design conformance.

After completion of the design examination, the notified body should confirm approval of the design and manufacturing procedures and verification of the approval of the personnel undertaking the permanent joining and the qualification of the personnel undertaking the non destructive tests, by issuing an EC design examination certificate to the manufacturer.

A specimen design examination document is given in figure B.4-1.

Design examination certificates are valid indefinitely providing that there are no changes in this European Standard. Should procurement not start within two years of the date of issue of design examination certificate, the design should be reviewed only if there are any safety relevant changes in the European Standard.

B.5 Certification and CE marking

B.5.1 Declaration of conformity, CE marking

On satisfactory completion of final assessment, assembly of documentation and completion of required certification, the manufacturer shall issue a declaration of compliance (see figures B.5-1 to B.5-4) with this standard prior to the declaration of conformity with the PED (see figure B.5-5).

Figures B.5-1 to B.5-4 contain specimen declarations of compliance which are recommended to be used when compliance to the requirements of this standard is declared.

B.5.2 Notified body's identification mark

Where appropriate the notified body's identification number shall be applied adjacent to the CE marking.

B.5.3 Certificate of conformity of the tests carried out under module F

The notified body shall issue a certificate of conformity for the tests carried out (see figures B.5-6 and B.5-7).

DESIGN EXAMINATION DECLARATION/CERTIFICATE

Description of piping

Identification no./drawings no.

designed by

(company)

for

(plant/purchaser/purpose)

Design conditions:

design pressure [bar]

design temperature [°C]

category

We hereby declare that the above piping has been designed in accordance with the requirements of the Directive 97/23/EC (Pressure Equipment Directive).

Company:

Signature

(name, position, date)

Under module B1 the following certificate shall be completed:

We hereby certify that we have examined the design and the manufacturing procedures and have verified the approval of the personnel undertaking the permanent joining and the qualification of the personnel undertaking the non-destructive tests for the above piping and that they conform to the requirements of the Directive 97/23/EC (Pressure Equipment Directive).

Notified Body:

certificate number:

Conditions:

Signature

(name, position, date)

Figure B.4-1 — Specimen for design examination declaration/certificate

DECLARATION/CERTIFICATE OF DESIGN COMPLIANCE

Description of piping

Identification no./drawings no.

designed by

(company)

for

(plant/purchaser/purpose)

Design conditions:

design pressure [bar]

design temperature [°C]

piping category

We hereby declare that the above piping has been designed in accordance with EN 13480

Company:

Signature

(name, position, date)

Where applicable, the following certificate shall be completed:

We hereby certify that we have examined the design and the manufacturing procedures and have verified the approval of the personnel undertaking the permanent joining and the qualification of the personnel undertaking the non destructive tests for the above piping and that they comply with EN 13480.

Authorized inspection body/Responsible person (as applicable):

Certificate number (if applicable):

Conditions:

Signature

(name, position, date)

Figure B.5-1 — Specimen of declaration/certificate of design compliance

**DECLARATION/CERTIFICATE OF COMPLIANCE
FOR PIPING FABRICATION AND INSTALLATION**

Description of piping

Identification no./Drawings no.

installed by

(company)

for

(plant/purchaser/purpose)

Design conditions:

design pressure [bar]

design temperature [°C]

medium contained

conformity assessment module

design examination certificate no./by

We hereby declare that the above piping has been fabricated, installed, examined and tested in accordance with EN 13480

Company:

Signature

(name, position, date)

Where applicable, the following certificate shall be completed:

We hereby certify that we have inspected the installation of the above piping and that it complies with EN 13480.

Authorized inspection body/Responsible person (as applicable):

Certificate number(if applicable):

Conditions:

Signature

(name, position, date)

Figure B.5-2 — Specimen of declaration/certificate of compliance for piping fabrication and installation

DECLARATION/CERTIFICATE OF COMPLIANCE FOR THE PIPING PROOF TEST

Description of piping

Identification no./Drawings no.

installed by

(company)

for

(plant/purchaser/purpose)

Design conditions:

design pressure [bar]

design temperature [°C]

test pressure [bar]

test medium

certificate of compliance for piping fabrication and installation no./by

We hereby declare that the above piping has been proof tested in accordance with EN 13480

Company:

Signature

(name, position, date)

Where applicable, the following certificate shall be completed:

We hereby certify that we have witnessed the proof testing of the above piping and that the testing results comply with EN 13480.

Authorized inspection body/Responsible person (as applicable):

Certificate number (if applicable):

Conditions:

Signature

(name, position, date)

Figure B.5-3 — Specimen for declaration/certificate of compliance for the piping proof test

DECLARATION/CERTIFICATE OF COMPLIANCE FOR PIPING

Description of piping

Identification no./drawings no.

manufactured by

(company)

for

(plant/purchaser/purpose)

Design conditions:

design pressure [bar]

design temperature [°C]

piping category

conformity assessment module

certificate of compliance for piping fabrication and installation no./by

pressure test certificate of piping no./by

We hereby declare that the above piping complies with the requirements of EN 13480

Company:

Signature

(name, position, date)

Where applicable, the following certificate shall be completed:

We hereby certify that we have performed final inspection of the above piping and that the tests carried out conform with EN 13480.

Authorized inspection body/Responsible person (as applicable):

Certificate number (if applicable):

Conditions:

Signature

(name, position, date)

Figure B.5-4 — Specimen for declaration/certificate of compliance for piping

**DECLARATION/CERTIFICATE OF CONFORMITY
FOR PIPING FABRICATION AND INSTALLATION**

Description of piping

Identification no./Drawings no.

installed by

(company)

for

(plant/purchaser/purpose)

Design conditions:

design pressure [bar]

design temperature [°C]

medium contained

conformity assessment module

design examination certificate no./by

We hereby declare that the above piping has been fabricated, installed, examined and tested in accordance with the requirements of the Directive 97/23/EC (Pressure Equipment Directive).

Company:

Signature

(name, position, date)

Under module F the following certificate shall be completed:

We hereby certify that we have inspected the installation of the above piping and that it conforms to the requirements of the Directive 97/23/EC (Pressure Equipment Directive).

Notified Body:

Certificate number:

Conditions:

Signature

(name, position, date)

Figure B.5-5 — Specimen for declaration/certificate of conformity for piping fabrication and installation

DECLARATION/CERTIFICATE OF CONFORMITY FOR THE
PIPING PROOF TEST

Description of piping

Identification no./Drawings no.

installed by

(company)

for

(plant/purchaser/purpose)

Design conditions:

design pressure [bar]

design temperature [°C]

test pressure [bar]

test medium

certificate of compliance for piping fabrication and installation no./by

We hereby declare that the above piping has been proof tested in accordance with the requirements of the Directive 97/23/EC (Pressure Equipment Directive).

Company:

Signature

(name, position, date)

Under module F the following certificate shall be completed:

We hereby certify that we have carried out the proof test of the above piping and that the test results conform to the requirements of the Directive 97/23/EC (Pressure Equipment Directive).

Notified Body:

Certificate number:

Conditions:

Signature

(name, position, date)

Figure B.5-6 — Specimen for test declaration/certificate of conformity for the piping proof test

DECLARATION/CERTIFICATE OF CONFORMITY FOR FINAL INSPECTION
FOR PIPING

Description of piping

Identification no./drawings no.

manufactured by

(company)

for

(plant/purchaser/purpose)

Design conditions:

design pressure [bar]

design temperature [°C]

category

conformity assessment module

certificate of compliance for piping fabrication and installation no./by

pressure test certificate of piping no./by

We hereby declare that we have performed final inspection of the above piping and that the tests carried out conform with the requirements of the Directive 97/23/EC (Pressure Equipment Directive).

Company:

Signature

(name, position, date)

Under module F the following certificate shall be completed:

We hereby certify that we have carried out the final inspection of the above piping and that the piping conforms to the requirements of the Directive 97/23/EC (Pressure Equipment Directive).

Notified Body:

certificate number:

Signature

(name, position, date)

Figure B.5-7 — Specimen for declaration/certificate of conformity of final inspection for piping

Annex C

Summary of inspection and testing activities

The required involvement of the parties concerned is indicated in table C.1 by letters in the appropriate conformity assessment columns as follows.

- (M) action performed by fabricator/installer, 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.

The participation of the manufacturer and the responsible authority with respect to conformity assessment procedures (right part of the table) is given for information only.

Table C.1 — 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: 2002	EN 13480-5: 2002	A	A1	D1	E1	B1	D ^a	B + C1 B + 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: 2002									
		Pipework fabricator	5.1		—	RA	—		—	—		RA		

Table C.1 (continued)

				Cross references for detailed requirements		Module									
		DOMAIN	INSPECTION OPERATIONS	EN 13480-4: 2002	EN 13480-5: 2002	A	A1	D1	E1	B1	D ^a	B + C1 B + E	F ^a	H	
Design	DESIGN SPECIFICATION	Design	Validate technical documentation for design/manufacture and operation	—	9.5.2	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	—	6.1	—	—	—		M	—		—	M/RA _q	
		Design approval	Issuing a Design Examination Certificate	—	Annex C	—	—	—		RA	—		—	—	
Fabrication/Installation specification	WELDING QUALIFICATION	Welding procedure specification	Verification of appropriate and suitable qualified specifications for fabrication and installation according to EN 288-2	9.2		M	M	M/RA _q		M/RA _c	M/RA _q		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	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	M/RA _q		M/RA _c	M/RA _q		RA	M/RA _q	
	FORMING	Approval of procedures and examination	Verify approval for forming operation to be carried out		7.1		M	M		M/RA _q	M/RA _c		M/RA _q	RA	M/RA _q
			Verify procedures available for cold and hot forming for the materials in question		7.1		M	M		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		M/RA _q	M/RA _c		M/RA _q	RA	M/RA _q

Table C.1 (continued)

				Cross references for detailed requirements		Module								
		DOMAIN	INSPECTION OPERATIONS	EN 13480-4: 2002	EN 13480-5: 2002	A	A1	D1	E1	B1	D ^a	B + C1 B + E	F ^a	H
Fabrication/Installation specification	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
		Marking transfer	Verification of the transfer of marking of materials and identification of pipework and components by appropriate method	6.2		M	M	M		—	M		M/RA _i	M
		Review of material certificate	Ensure certificate type is correct and results complies with materials specification	4.2		M	M	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	4.2		M	M	M		—	M/RA _m		M/RA _i	M/RA _m

Table C.1 (continued)

				Cross references for detailed requirements		Module										
		DOMAIN	INSPECTION OPERATIONS	EN 13480-4: 2002	EN 13480-5: 2002	A	A1	D1	E1	B1	D ^a	B + C1 B + E	F ^a	H		
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	5.5 6.1	8.2	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	5.2 9.7	8.2	M	M	M		—	M		M/RA _i	M/RA _q		
		Welding, including adjustment and repair	Verification that WPS are being complied with	9.3 10.3		M	M	M/RA _q		—	M/RA _m		M/RA _i	M/RA _q		
			Verify temporary attachments are welded according to approved procedures	8.4.1 10.3	8.2	(M)	M	M			M		M	M		
			Visual examination of completed welds (prior to any post-weld heat treatment if possible)	—		M	M	M			M		M/RA _c	M/RA _q		
			Verify that welds are correctly identified in accordance with this standard	9.11 10.3		(M)	M	M			M		M	M		
	Verify temporary attachments are properly removed and permanent attachment welds are according to drawing	9.13 10.3		M	M	M		M		M/RA _i	M/RA _q					
	INSTALLATION	Installation of pipe-work including adjustment and repair	Verification of conformance to drawing for supports, anchors position, type and marking of valves, cold pull earthing	5 8 10		M	M	M			—		M		M/RA _c	M

Table C.1 (continued)

				Cross references for detailed requirements		Module								
		DOMAIN	INSPECTION OPERATIONS	EN 13480-4: 2002	EN 13480-5: 2002	A	A1	D1	E1	B1	D ^a	B + C1 B + E	F ^a	H
Fabrication/Installation specification	INSTALLATION	Specific requirements for pipework	Take off points are marked on permanent side indicating the fluid contained	11.2		M	M	M	Not considered in EN 13480	—	M	Not considered in EN 13480	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 9.11		M	M	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 any coating/insulation: verification that fabrication has been completed in accordance with design specification	—	8.2	M	M	M/RA _m		—	M/RA _m		M/RA _i	M/RA _m
		Approval of NDT procedures	Verify that procedures meet the requirements of this standard	—	8	M	M	M/RA _q		—	M/RA _q		M/RA _i	M/RA _q
		NDT personnel	Verification of validity of operators and supervisors qualification for the relevant NDT	—	8.4.3	M	M	M/RA _q		M/RA _c	M/RA _q		M/RA _i	M/RA _q
		Non destructive testing (see table 3 for extent)	Carry out RT	—	8.4	(M)	M	M		—	M/RA _q		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	—	8.8	M	M	M/RA _m	—	M/RA _m	M/RA _i	M/RA _m		
			Review NDT extent for compliance with the requirements of the manufacturing schedule or this standard	—		M	M	M/RA _m	—	M/RA _m	M/RA _i	M/RA _m		

Table C.1 (continued)

				Cross references for detailed requirements		Module								
		DOMAIN	INSPECTION OPERATIONS	EN 13480-4: 2002	EN 13480-5: 2002	A	A1	D1	E1	B1	D ^a	B + C1 B + E	F ^a	H
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	—	9.1.1.7	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, 9.1.2	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, 9.1.3	M	M/RA _i	M/RA _m		—	M/RA _m		M/RA _c	M/RA _m
	FINAL INSPECTION	Final visual examination	Verification of dimensions and orientations, not previously verified		9.2.1	M	M/RA _i	M/RA _m		—	M/RA _m		M/RA _c	M/RA _m
		Documentation	Verification that manufacturing documentation complies with applicable requirements of this standard		9.2.2	M	M/RA _i	M/RA _m		—	M/RA _q		M/RA _c	M/RA _q
		Final report	Issue and verification of a design and manufacturing documentation package	11.3	9.5.1 9.5.2	(M)	M/RA _i	M/RA _q		—	M/RA _q		M/RA _c	M/RA _q
	INSPECTION OF SAFETY DEVICES	Safety devices	Verification of required safety devices		9.5	M	M/RA _i	M/RA _m		—	M/RA _m		M/RA _c	M/RA _m

Table C.1 (continued)

				Cross references for detailed requirements		Module								
		DOMAIN	INSPECTION OPERATIONS	EN 13480-4: 2002	EN 13480-5: 2002	A	A1	D1	E1	B1	D ^a	B + C1 B + E	F ^a	H
Final assessment	CONFORMITY	Marking	Verification that required stamping (manufacturer's mark, authorized inspection body's mark) has been made	11.1 11.2		M	M/RA _i	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		10.2	M	M	M		—	M		M	M
		Certificate of conformity	Authorized inspection body's certificate of conformity of the test carried out		10.3	—	—	—		—	—		RA	—
^a require combination with module B1 design examination														

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