SLOVENSKI STANDARD
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Neogrevane tlaļ ne posode - 7. del: Smernice za ugotavljanje skladnosti

Unfired pressure vessels - Part 7: Guidance on the use of the conformity procedures

Unbefeuerte Druckbehälter - Teil 7: Anleitung für den Gebrauch des Konformitätsbewertungsverfahrens

Récipients sous pression non soumis a la flamme - Partie 7: Guide pour l'utilisation des procédures d'évaluation de la conformité

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This CEN Report was approved by CEN on 6 March 2002. It has been drawn up by the Technical Committee CEN/TC 54.

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

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Contents

Foreword

This document (CR 13445-7:2002) has been prepared by Technical Committee CEN/TC 54 "Unfired pressure vessels", the secretariat of which is held by BSI.

This European Standard “Unfired pressure vessels” consists of the following Parts:

— *Part 1: General.*

— *Part 2: Materials.*

— *Part 3: Design.*

— *Part 4: Manufacture.*

— *Part 5: Testing and Inspection.*

— *Part 6 : Requirements for design and fabrication of pressure vessels and vessel parts constructed of spheroidal graphite cast iron.*

CR 13445-7, *Unfired pressure vessels - 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 unfired pressure vessels 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*.

EN ISO 9001:2000, *Quality management systems –Requirements*.

3 Terms and definitions

3.1
responsible authority
competent organisation which is independent of the manufacturer. For application within the jurisdiction of the European Union this organisation should be a notified body or a recognised third-party organisation or a user inspectorate, as 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

The PED requires that for each pressure vessel the hazard category should be determined. Thereafter the manufacturer should choose the module or combination of modules of conformity assessment from those permitted recognizing that:

— each individual vessel should be manufactured to a single module or a combination of modules;

— each series of identical vessels (including batches) should be manufactured to a single module or a combination of modules.

4.2 Classification of pressure vessels in hazard categories

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

Group 1: This group comprises dangerous fluids (under Council Directive 67/548/EEC (27 June 1967), Article 2 (2)), i.e. fluids defined as:

— explosive;

— extremely flammable;

— highly flammable;

— flammable (where the maximum allowable temperature is above flashpoint);

— very toxic;

— toxic;

— oxidizing.

Group 2: This group 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 four specific cases:

a) Fluids in Group 1; Vessels 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: V > 1 L and PS · V > 25 bar·L, or, PS > 200 bar;

b) Fluids in Group 2; Vessels 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: V > 1 L and PS · V > 50 bar·L, or, PS > 1000 bar;

c) Fluids in Group 1; Vessels 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: V > 1 L and PS ·V > 200 bar·L, or, PS > 500 bar;

d) Fluids in Group 2; Vessels 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 PS · V > 10 000 bar·L, or, PS > 1 000 bar.

Pressure vessels are classified in hazard categories I to IV according to one of the relevant cases a) to d) and their volume 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 should subject each vessel to a procedure to assess the conformity with the essential requirements of the PED. A list of conformity assessment procedures is given in Table B.1.

4.3.2 Choice of conformity assessment procedure

The conformity assessment procedures to be applied to a vessel with a view to affixing the CE marking should be determined by the hazard category in which the vessel is classified. The procedures that are to be applied for the various hazard categories are given in Table B.2.

The vessel manufacturer has the option of selecting between a procedure of conformity assessment involving a 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 EN 13445, 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 involvement of User Inspectorates is restricted to the modules A1, C1, F and G.

Serially produced pressure vessels manufactured to Annex A of EN 13445-5 refer to "Model Acceptance". For vessels manufactured to satisfy the PED, the requirements for model acceptance can be considered as "Type Approval" (Module B) providing the responsible authority has been involved at the appropriate time. Several conformity modules are based on the design element of a type approval.

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.

Annex C has been provided in order to give guidance to the different parties so that they 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.

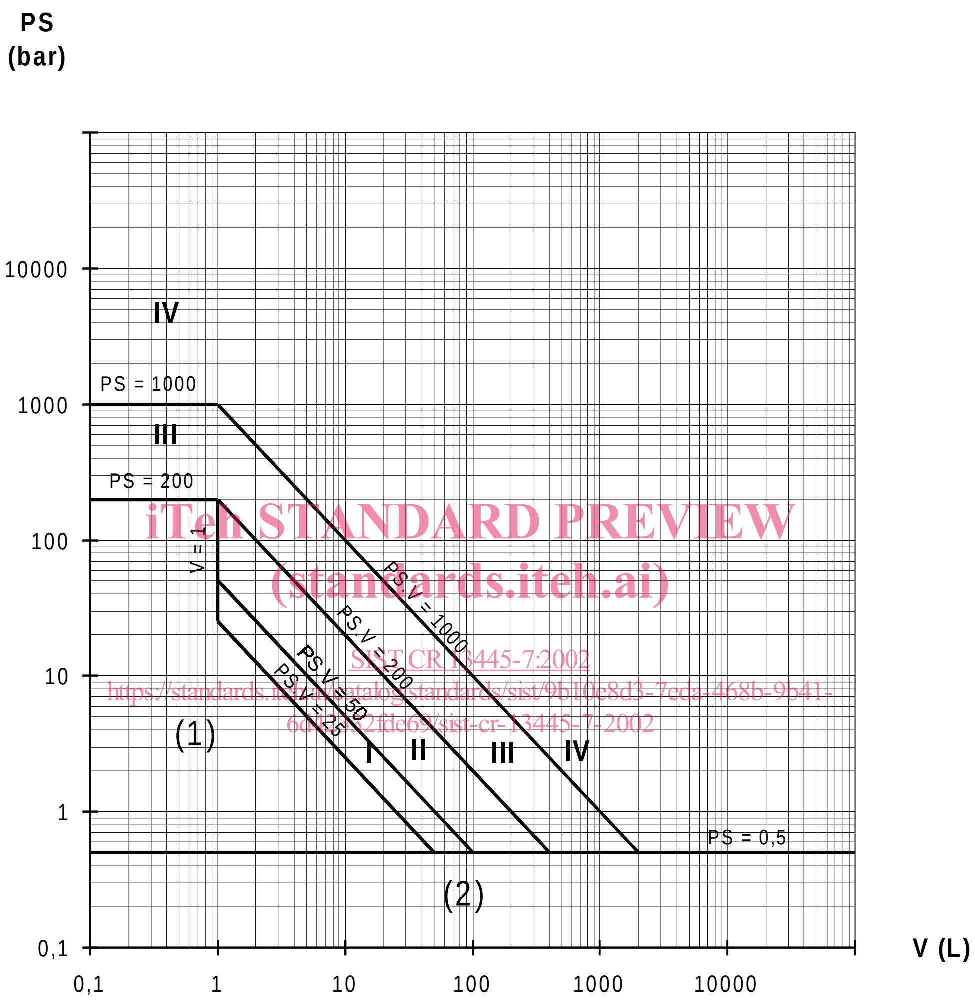
5 Subcontracting

Where the manufacturer is producing the pressure vessel under a conformity assessment procedure requiring intervention of a responsible authority, the manufacturer should 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 should be described in his appropriate quality system.

Annex A
(informative)

Conformity Assessment Tables



Key

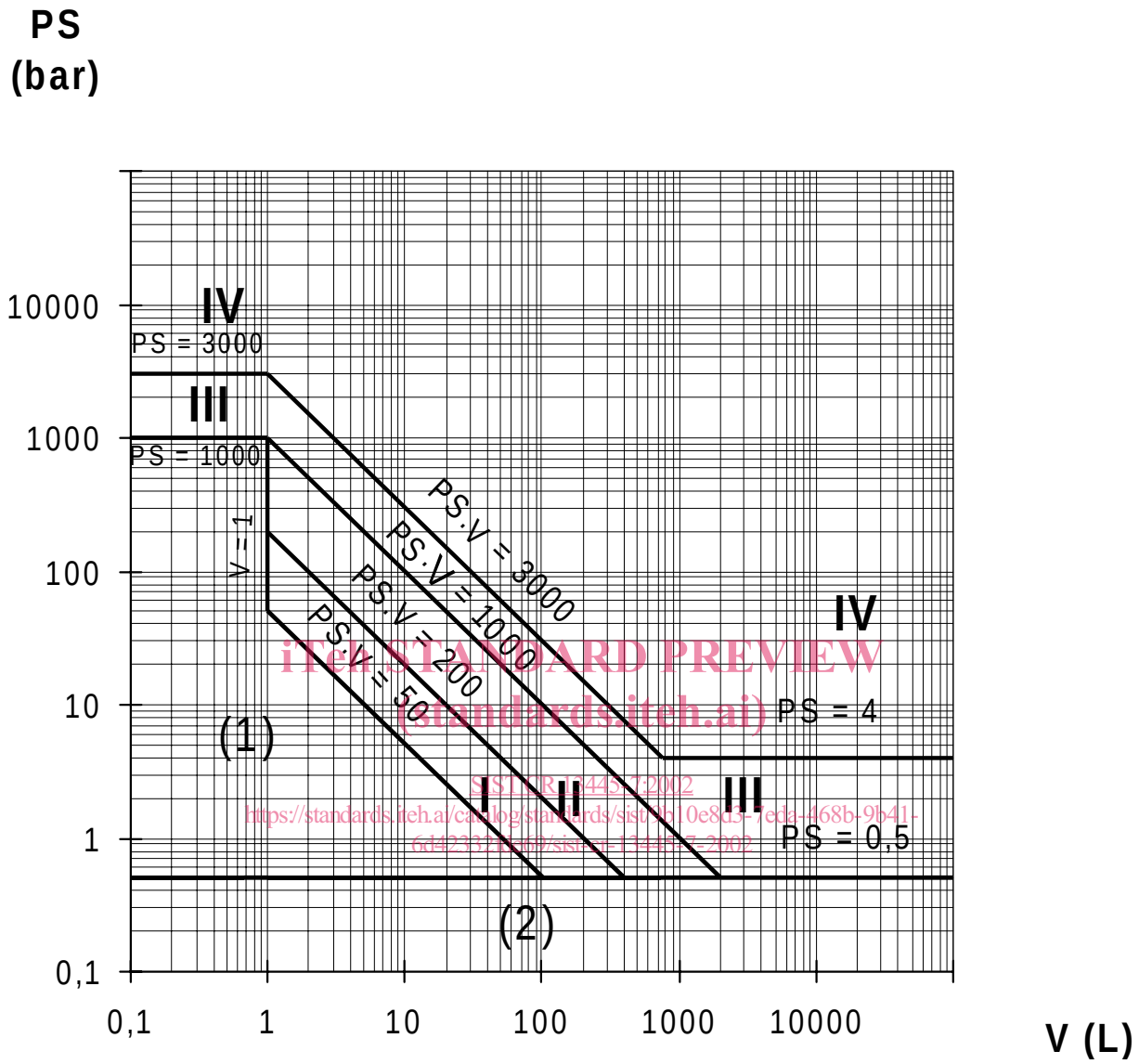
(1) Without hazard category, see article 3, paragraph 3 of Directive 97/23/EC

(2) Not in the scope of Directive 97/23/EC

NOTE 1 Exceptionally, vessels intended to contain an unstable gas and falling within categories I or II on the basis of this table should be classified in category III.

NOTE 2 Ref.: Directive 97/23/EC, Annex II, Table 1.

Figure A.1 - Vessels for fluids in accordance with 4.2 a).



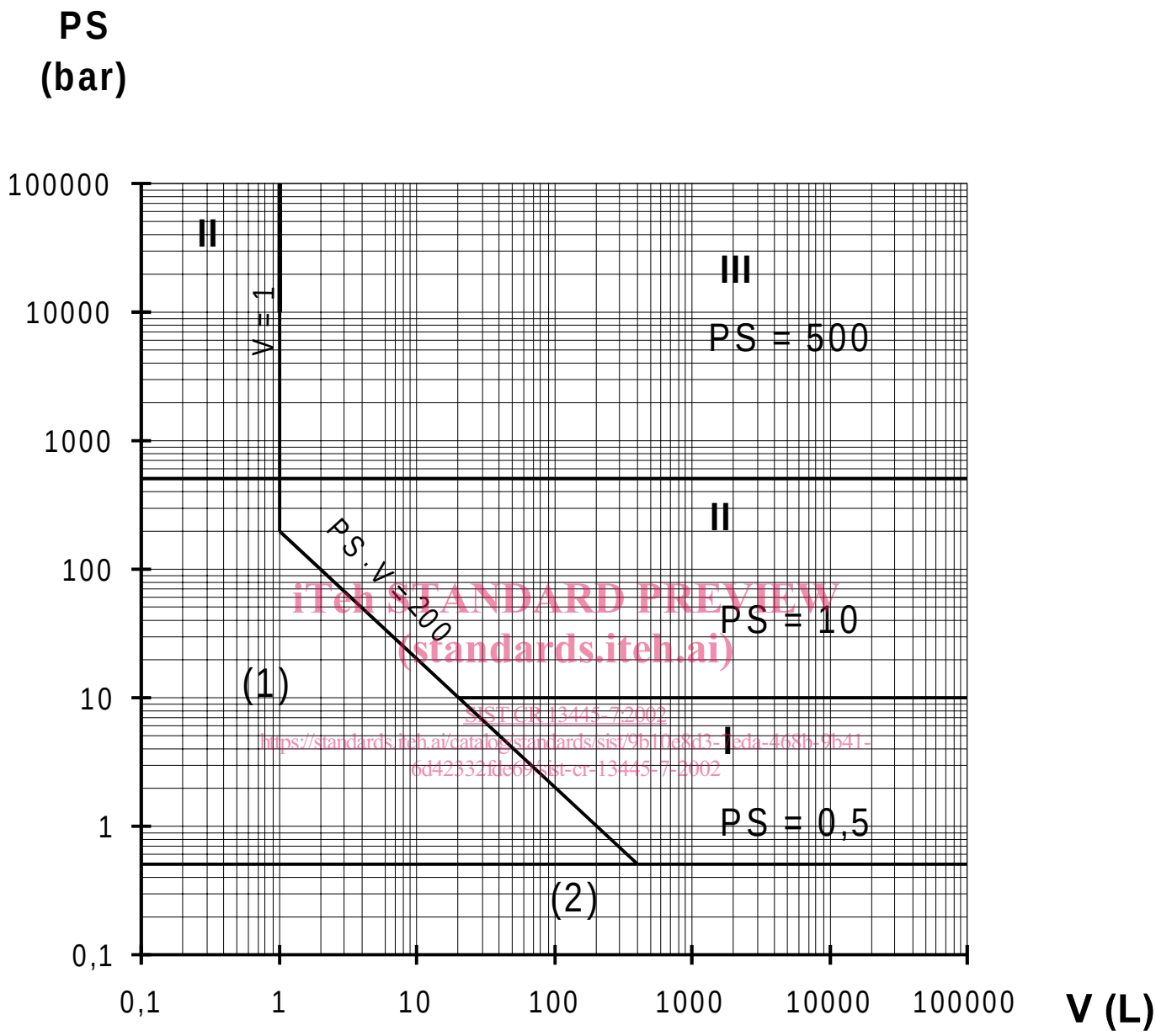
Key

(1) Without hazard category, see article 3, paragraph 3 of Directive 97/23/EC

(2) Not in the scope of Directive 97/23/EC

NOTE Ref.:Directive 97/23/EC, Annex II, Table 2.

Figure A.2 - Vessels for fluids in accordance with 4.2 b).



Key

(1) Without hazard category, see article 3, paragraph 3 of Directive 97/23/EC

(2) Not in the scope of Directive 97/23/EC

NOTE Ref.:Directive 97/23/EC, Annex II, Table 3.

Figure A.3 - Vessels for fluids in accordance with 4.2 c).