SLOVENSKI STANDARD
SIST EN 1916:2003/AC:2007

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Nadomeġļa:
SIST EN 1916:2003/AC:2004

Betonske cevi in fazonski kosi, nearmirani, z jeklenimi vlakni in armirani

Concrete pipes and fittings, unreinforced, steel fibre and reinforced

Rohre und Formstücke aus Beton, Stahlfaserbeton und Stahlbeton

Tuyaux et pieces complémentaires en béton non armé, béton fibré acier et béton armé

Ta slovenski standard je istoveten z: **EN 1916:2002/AC:2006**

ICS:

23.040.50	Cevi in fitingi iz drugih materialov	Pipes and fittings of other materials
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

SIST EN 1916:2003/AC:2007 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1916:2002/AC

December 2006
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ICS 23.040.50; 93.030

English version
Version Française
Deutsche Fassung

Concrete pipes and fittings, unreinforced, steel fibre and reinforced

Tuyaux et pièces complémentaires en béton non armé, béton fibré acier et béton armé

Rohre und Formstücke aus Beton, Stahlfaserbeton und Stahlbeton

This corrigendum becomes effective on 13 December 2006 for incorporation in the three official language versions of the EN.

Ce corrigendum prendra effet le 13 décembre 2006 pour incorporation dans les trois versions linguistiques officielles de la EN.

Die Berichtigung tritt am 13.Dezember 2006 zur Einarbeitung in die drei offiziellen Sprachfassungen der EN in Kraft.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No.:EN 1916:2002/AC:2006 D/E/F

English Version

In **Annex K**, Step 8 shall be as follows ("Table I.4" and not "Table I.3"):

Step 8: Determine the acceptability as follows:

Consider the measured value x of the bending tensile stress at the ultimate (collapse) load F_u from the last n consecutive samples.

Calculate the mean value $\bar{x}$ and the standard deviation s of these n values.

Calculate the lower quality statistic Q for the lower specification limit:

$Q = (\bar{x} - f_{des})/ s$

where

f_{des} is the lower specification limit for the bending tensile stress,

then compare the quality statistic with the acceptability constant k obtained from the appropriate column in **Table I.4**. Interpolation for intermediate values of n is permissible.

For acceptance, the quality statistic for the lower specification limit shall be greater than or equal to the acceptability constant.

1 Scope

Add in the first sentence "for use in pipelines" after " ... and reinforced, ":

"This European Standard specifies performance requirements as defined in Table 1 and describes test methods for precast concrete pipes and fittings, unreinforced, steel fibre and reinforced, **for use in pipelines** with flexible joints (with seals either integrated in the units or supplied separately) and nominal sizes not exceeding DN 1 750 for units with a circular bore or WN/HN 1 200/1 800 for units with an egg-shaped bore, for which the main intended use is the conveyance of sewage, rainwater and surface water under gravity or occasionally at low head of pressure, in pipelines that are generally buried."

3.1.8

add "pipe with inlet" to the definition of a fitting:

"**fitting**
adaptor, bend, connecting pipe, junction, **pipe with inlet** or taper (reducer)"

5.2.4 Conformity of proof (crack) load tested pipes

Add the words "that have been" after "pipes" in the first sentence:

"Reinforced concrete pipes **that have been** tested only to proof (crack) load in accordance with 6.4 and meeting the requirements of 5.2.3 conform to this European Standard."

6.8 Concrete strength in jacking pipes

Correct the conversion factor for drilled 50 mm ± 1 mm diameter cores from 0,9 into 1,07:

"The drilled cores shall have a height equal to their diameter ± 10 mm:

— when 100 mm ± 1 mm diameter cores are used, the result shall be applied without any conversion factor;

— when 50 mm ± 1 mm diameter cores are used, a conversion factor of **1,07** shall be applied to the results."

A.2.5.2.1 Preliminaries

Correct the formula for δ_{max}:

"The specific force/deformation diagram shall then be used to determine the change in the maximum deformation $\Delta\delta_{max}$ caused by a unit force F_d, then the maximum deformation δ_{max} calculated from the following equation:

$$\delta_{max} = \delta_2 + \Delta\delta_{max}"$$

A.2.5.2.2 Evaluation of effective tightened width (Method 1)

Insert the words "used in A.2.5.2.1" after "test piece" in the first sentence:

The test piece **used in A.2.5.2.1** shall be placed in the apparatus at an ambient temperature of 20 °C ± 3 °C, compressed to a deformation equal to δ_{min} and the relevant tightening force F and effective tightened width b_t measured and recorded.

A.2.6.2 Mean pressure (Method 1)

Correct de definition of f:

"f **is** the mean pressure, in megapascals (newtons per square millimetre);"

A.3.3.1 Method 1

Correct in the title of Figure A.2 the reference to table A.3:

Figure A.2 — Basic assumptions for the example in Table A.3

Annex C: C.4.1 General

Replace figures C.2a and C.2b by the following:

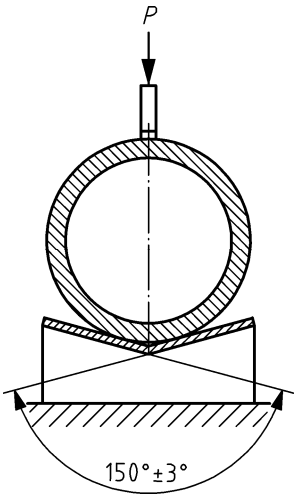


Figure C.2 a)

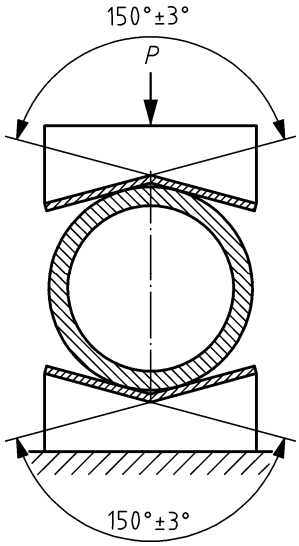


Figure C.2 b)
(not for pipes DN ≤ 1 200)

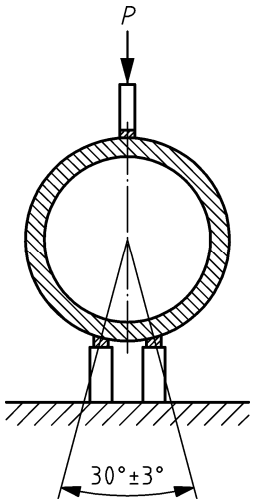


Figure C.2 c)

Figure C.2 — Typical arrangements for the crushing test on circular pipes

Annex E: E.4 Procedure (hydrostatic test - routine and initial type tests)

Add reference to Method 4 in first sentence:

"Where the durability of joints is demonstrated by **either Method 1, Method 3 or Method 4** in 4.3.4.2, a single unit shall be clamped securely in the apparatus, its ends closed and then filled with water, taking care to ensure that all the air is removed. The internal hydrostatic pressure shall then be raised gradually to 50 kPa (0,5 bar or approximately 5 metre water column), measured from the centre-line of the unit, and maintained for a period of 15 minutes, during which time the unit shall be evaluated for conformity to 4.3.7, before reducing the internal pressure to zero."

Annex E: E.5.2 Watertightness during angular deflection

Clarify the procedure for preventing the joint gap from closing by deleting the word "mean" in the 3rd sentence:

"The units shall be deflected to an angular deflection of 12 500/DN (or 12 500/WN, as appropriate to the shape of the bore) in millimetres per metre or 50 millimetres per metre, whichever is the smaller, taking care to ensure that no structural damage is caused. In the case of egg-shaped units the deflection shall be in the vertical plane. During this operation the joint gap shall be prevented from closing at any point by, for example, interposing at the appropriate place a packing with a thickness equal to the **[ ]** value of the clearance stated in the factory documents.

Annex E: E.5.3: Watertightness under shear load

Take into account that the pipe submitted to the watertightness test is not necessary completely filled with water: Add after the formula for R_s and the definition of W_w:

"Where the pipe is completely filled with water the value of R_s shall be calculated according to the following formula:

$$R_s = (F_s - W_w / 2) \times l_1 / (l_1 - a_s) \geq 0, \text{ in kilonewtons}$$

where

W_w is the weight of one unit filled with water, in kilonewtons

Where the full length of the pipe bore is not filled with water the formula shall be adjusted accordingly."

Annex F: F.4.1 Determination of mass of immersed sample m_1

Clarify the procedure of immerging the sample, by inserting the word "minimum" to the 2nd sentence:

"The sample shall be brought to a temperature of 20 °C ± 3 °C, then immersed in tap water at the same temperature until a constant mass has been reached. This shall be achieved in stages by successively immersing the sample at intervals of one hour to approximately 1/3 of the height, approximately 2/3 of the height and the total height, with a **minimum** final water level of 20 mm above the top surface of the sample."

Annex H: Table H.1 :

Correct sampling procedures for concrete cover according to clauses 5.2.2 and 5.3.3:
- by replacing the frequency 1 N for the initial type test by 1 S;
- by adding the word "using" before "covermeter" for the initial type test;
- by replacing the reference to 5.2.3 by the word "collapse" for the routine inspection.

Table H.1 — Sampling procedures

Clause	Test when specified	Initial type test	Routine inspection
5.2.2 and 5.3.3	Concrete cover	1 **S** using every pipe that has been type-tested to 5.2.3, or **using** covermeter for other units	every pipe that has been tested to **collapse** and, using covermeter, 2 N/day

Annex H: Table H.2 :

Clarify sampling procedure for initial type test of joint assembly by adding " or, at the manufacturer's discretion, one such pair of units with the most unfavourable tolerances."

Clarify sampling procedure for joint assembly tests under routine inspection by adding "joint assembly of a" before "... pair of units...":

Table H.2 — Sampling procedures for joint assembly tests

Tests	
1) Angular deflection and 2) shear load, or 3) angular deflection and shear load combined.	
Initial type test	Routine inspection (where Method 1, 3 or 4 has been used in 4.3.4.2 to demonstrate the durability of joints)
Two pairs of units from the same group: - having the same seal profile section; - having the same joint profile that is effective when jointing, **or, at the manufacturer's discretion, one such pair of units with the most unfavourable tolerances.**	One **joint assembly of a** pair of units from the same group per 1 000 produced but not less than one test per year: - having the same seal profile section; - having the same joint profile that is effective when jointing; or, at the manufacturer's discretion, if the initial type test has been successfully carried out with the most unfavourable tolerances, it is permissible to verify only joint and joint seal profile dimensions at a frequency as stated in the factory documents, but not less than: - one unit per 25 produced for each nominal size and type; - one unit per day for each nominal size and type.

Annex I: I.4: Figure I.1

Correct symbol for the standard deviation in the last lozenge of the right branch of the flow chart ($\delta \rightarrow \sigma$).

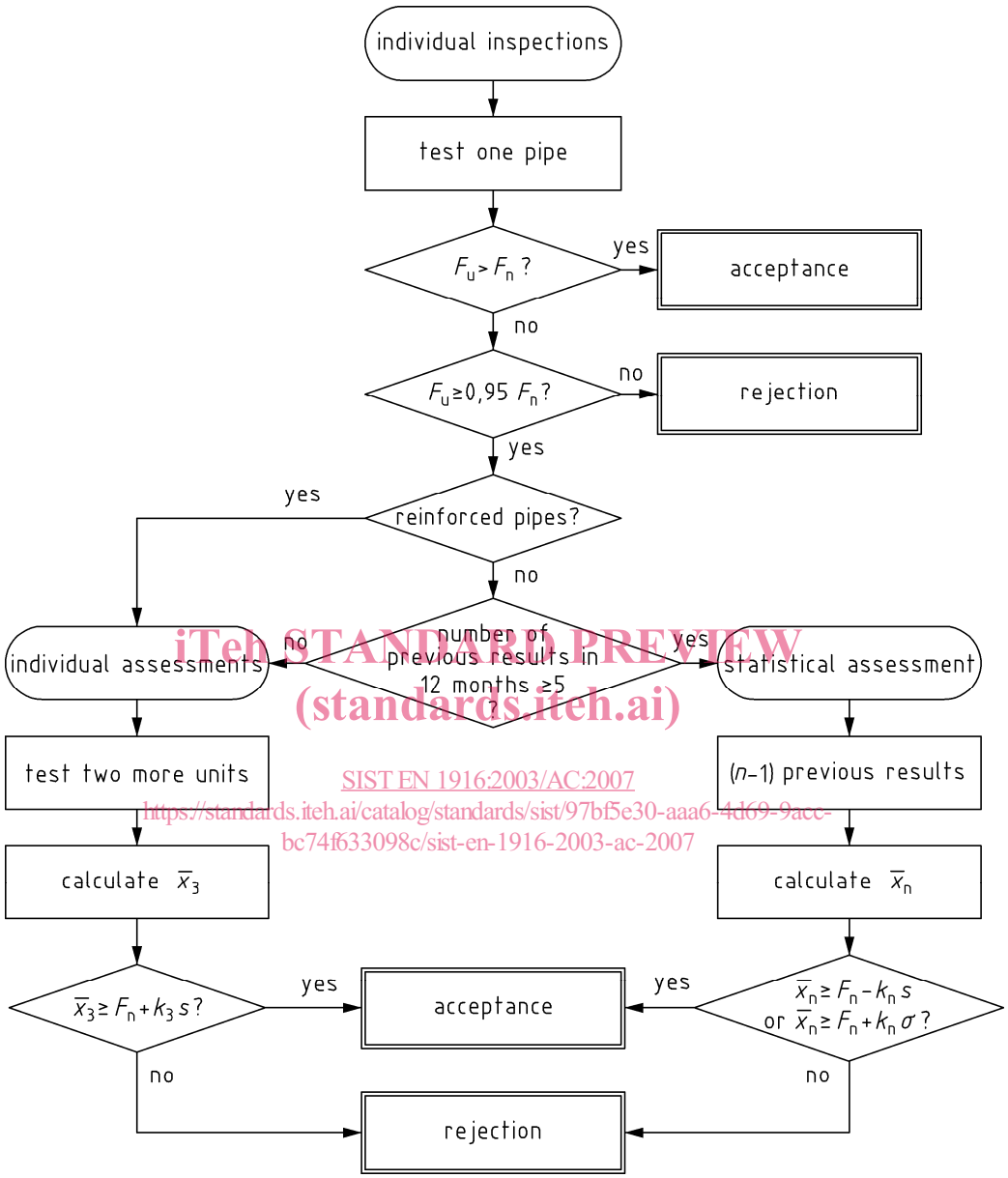


Figure I.1 — Flow chart for inspection of ultimate (collapse) load on the basis of individual assessments (excluding inspection of unreinforced pipes using the Annex K option and basic inspection of reinforced pipes)

Version française

1 Domaine d'application

Ajoutez dans la première frase "pour utilisation dans des conduites" après " ... et béton armé, ":

"La présente norme européenne spécifie les exigences performancielles définies au Tableau 1 et décrit les méthodes d'essai relatives aux tuyaux et pièces complémentaires préfabriqués en béton non armé, béton fibré acier et béton armé, **pour utilisations en canalisations** à assemblages souples (avec garnitures d'étanchéité intégrées à l'élément ou fournies séparément), dont la dimension nominale ne dépasse pas DN 1750 dans le cas des éléments de section intérieure circulaire ou WN/HN 1200/1800 dans le cas des éléments de section ovoïde, et destinés principalement à véhiculer, dans des canalisations généralement enterrées, des eaux usées, des eaux pluviales et des eaux de surface par écoulement gravitaire ou, occasionnellement, sous faible pression."

3.1.8

Ajoutez "tuyau avec orifice d'entrée" à la définition d'une pièce complémentaire:

"**pièce complémentaire**

adaptateur, coude, tuyau de raccordement, tuyau avec branchement, **tuyau avec orifice d'entrée** ou élément de réduction"

6.8 Résistance du béton des tuyaux de fonçage

Changez le coefficient de conversion pour les carottes d'un diamètre de 50 mm ± 1 mm d de 0,9 à 1,07:

"La hauteur des carottes doit être égale à leur diamètre ± 10 mm :

— lorsqu'on utilise des carottes d'un diamètre de 100 mm ± 1 mm, le résultat doit être exploité sans coefficient de conversion ;

— lorsqu'on utilise des carottes d'un diamètre de 50 mm ± 1 mm, on doit appliquer un coefficient de conversion égal à **1,07**."

7.2.2 Essais de type initiaux

Remplacez les mots "au démarrage d'une nouvelle fabrication" par "au démarrage de la fabrication d'un nouveau type":

"Les essais de type initiaux doivent être effectués pour démontrer la conformité des éléments à la présente Norme européenne : Les essais effectués antérieurement selon les prescriptions de la présente norme (même produit ou groupe spécifié de produits, mêmes caractéristiques, même méthode d'échantillonnage et essai identique ou plus exigeants) peuvent être pris en compte. Des essais de type initiaux doivent aussi être effectués :

— au démarrage **de la fabrication d'un nouveau type"**

Annexe A: A.2.5.2.1 Etape préliminaire

Corrigez la formule pour δ_{max}:

Le diagramme effort/déformation spécifique doit alors être utilisé pour déterminer la variation de la déformation maximale $\Delta\delta_{max}$ engendrée par un effort unitaire F_d et on calcule ensuite la déformation maximale δ_{max} à l'aide de l'équation suivante :

$\delta_{max} = \delta_2 + \Delta\delta_{max}$"

Annexe A: A.2.5.2.2 Evaluation de la largeur comprimée effective (Méthode 1)

Insérez les mots "utilisée sous A.2.5.2.1" après "éprouvette" dans la première frase:

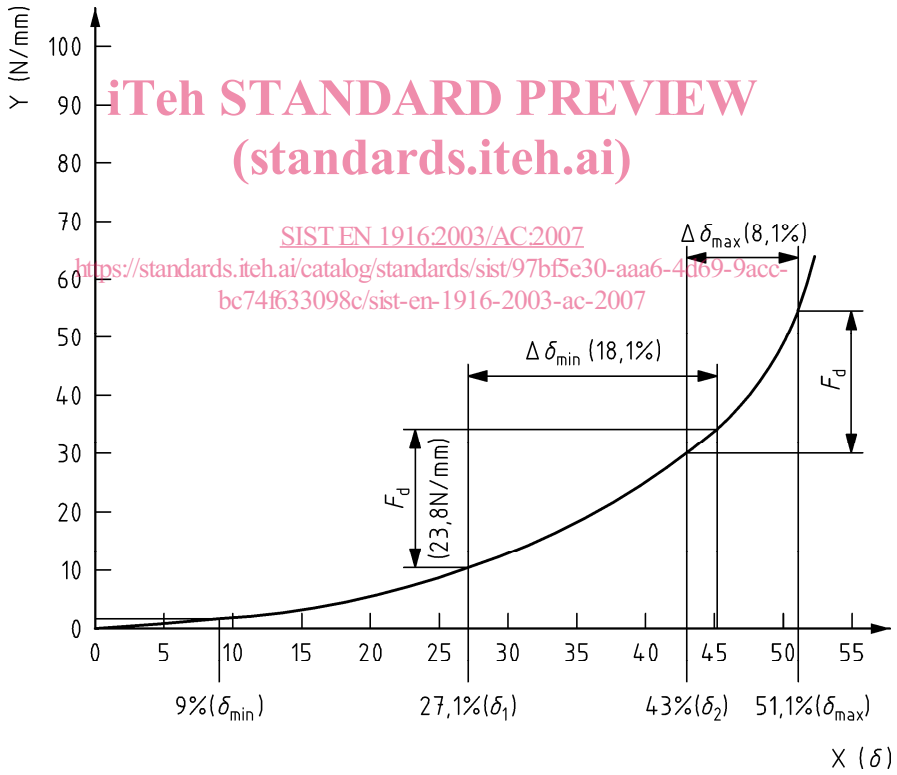
L'éprouvette **utilisée sous A.2.5.2.1** doit être placée dans l'appareillage à une température ambiante de 20 °C ± 3 °C et comprimée pour atteindre une déformation égale à δ_{min}; on note l'effort de serrage *F* et la largeur comprimée effective b_t mesurés.

Annexe A: A.2.6.2 Pression moyenne (méthode 1)

Corrigez la définition de *f*:

f **est** la pression moyenne, en mégapascal (newton par millimètre carré);

Remplacez la Figure A.1 par la suivante:



Légende

X Déformation
Y Force par unité de longueur de garniture

Figure A.1 — Diagramme effort/déformation spécifique admis pour les exemples et pris en compte pour la détermination de $\Delta\delta_{min}$ (méthode 1) ou $\Delta\delta_{max}$ (méthode 2)