SLOVENSKI STANDARD
SIST EN 14982:2007+A1:2010

01-december-2010

Cevni sistemi iz polimernih materialov - Plastomerni revizijski in vstopni jaški - Določanje obodne togosti (vključno z dopolnilom A1)

Plastics piping and ducting systems - Thermoplastics shafts or risers for inspection chambers and manholes - Determination of ring stiffness

Kunststoff-Rohrleitungssysteme und Schutzrohrsysteme - Schachtringe und Steigrohre für Kontroll- und Einsteigschächte aus thermoplastischen Kunststoffen - Bestimmung der Ringsteifigkeit

Systèmes de canalisations et de gaines en plastique - Eléments de rehausse en matière thermoplastique pour chambres d'inspection ou regards - Détermination de la rigidité annulaire

Ta slovenski standard je istoveten z: **EN 14982:2006+A1:2010**

ICS:

23.040.01	Deli cevovodov in cevovodi na splošno	Pipeline components and pipelines in general
93.030	Zunanji sistemi za odpadno vodo	External sewage systems

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Plastics piping and ducting systems - Thermoplastics shafts or risers for inspection chambers and manholes - Determination of ring stiffness

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This European Standard was approved by CEN on 28 August 2006 and includes Amendment 1 approved by CEN on 2 August 2010.

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Foreword

This document (EN 14982:2006+A1:2010) has been prepared by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems”, the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.

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This document includes Amendment 1, approved by CEN on 2010-08-02.

This document supersedes EN 14982:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

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1 Scope

This European Standard specifies a test method for assessing the initial (short-term) tangential ring stiffness of riser shafts for thermoplastics inspection chambers or manholes.

NOTE This is intended as a test of the structural integrity of riser shafts supporting product standards ⟨A1⟩ EN 13598-2 [1] ⟨A1⟩ and prEN 15229 [2].

2 Normative references

The following referenced documents are indispensable for the application 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.

⟨A1⟩ EN ISO 9969, *Thermoplastics pipes — Determination of ring stiffness (ISO 9969:2007)* ⟨A1⟩

ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD*)

3 Terms and definitions

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

3.1
inspection chamber
drainage and sewerage fitting used for the connection of drainage or sewerage installations and/or for changing the direction of drainage/sewerage runs. An inspection chamber terminates at ground level, permitting the introduction of cleaning, inspection and test equipment and the removal of debris but it does not provide access for personnel. The riser shaft connected to these fittings has a minimum outside diameter of 200 mm and a maximum inside diameter of less than 800 mm

3.2
manhole
drainage and sewerage fitting used for the connection of drainage or sewerage installations and/or for changing the direction of drainage/sewerage runs. A manhole terminates at ground level, permitting the introduction of cleaning, inspection and test equipment and the removal of debris and also providing access for personnel. The minimum inside diameter of a manhole riser shaft is 800 mm

3.3
structured-wall ancillary fitting
fitting with an optimized structural design with regard to material usage, but which still achieves the relevant performance requirements. These fittings could be circular or rectangular in design

3.4
regular cross section shaft
riser shaft either fabricated from plain pipe or from structured wall pipe or fittings with a regular symmetrical design on their external surface. These products could be manufactured by extrusion, injection moulding, blow moulding or rotational moulding

3.5
irregular cross section shaft
riser shaft with an irregular asymmetrical design on its external surface such as those with additional reinforcing rings or structures intended to strengthen the riser in specific areas. These products could be manufactured by extrusion, injection moulding, blow moulding or rotational moulding

4 Principle

4.1 General

The ring stiffness of a shaft is determined using the EN ISO 9969 test method when the shaft has a circular and regular cross-section.

Where a shaft has a square or rectangular cross-section, or if the shape is irregular, then the EN ISO 9969 test is modified as described in this standard to determine the ring stiffness. See Table 1.

Table 1 – Relevant standards for determination of ring stiffness

External shaft design	Type of cross-section	Relevant standard for determination of ring stiffness
Plain surface	Regular cross-section and circular	EN ISO 9969
	Irregular cross-section, circular or square or rectangular	EN 14982
Structured wall surface	Regular cross-section and circular	EN ISO 9969
	Irregular cross-section, circular or square or rectangular	EN 14982

4.2 Principle for shafts with circular and regular cross-section

The ring stiffness is determined by measuring the force and the deflection while deflecting the shaft at a constant rate.

A length of shaft supported horizontally is compressed vertically between two parallel flat plates moved at a constant speed which is dependent upon the diameter of the shaft.

A plot of force versus deflection is generated. The ring stiffness is calculated as a function of the force necessary to produce a deflection of $0{,}03 d_i$ diametrically across the shaft.

4.3 Principle for shafts with circular and irregular cross-section or, square or rectangular

The ring stiffness is determined by measuring the force and deflection whilst deflecting the shaft at a constant rate or constant load, until sufficient force is applied to obtain a resulting deflection in the range of 2% to 6%.

A riser shaft or segment of shaft is placed symmetrically between two rigid parallel plates or beams or alternatively between one rigid beam and a V-shaped support. A compressive force is applied to the shaft or segment using a bearer shaped to the external surface of the test piece.

The ring stiffness is calculated as a function of the force required to produce the deflection.

5 Apparatus

5.1 Shaft with circular and regular cross-section

The apparatus shall conform to that described in EN ISO 9969.

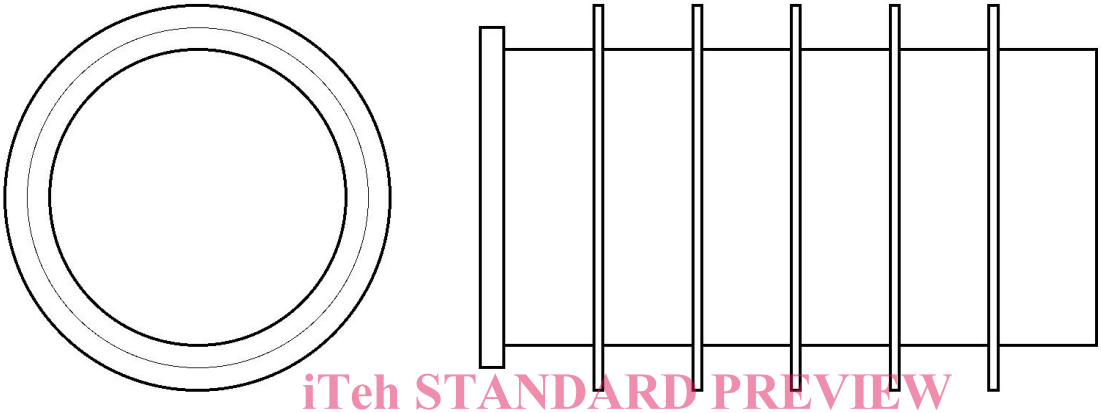

Figure 1 — Shaft with circular and regular cross section

5.2 Shaft with circular and irregular cross-section or, square or rectangular

NOTE Examples for representative test pieces are shown in Figures 2 to 3

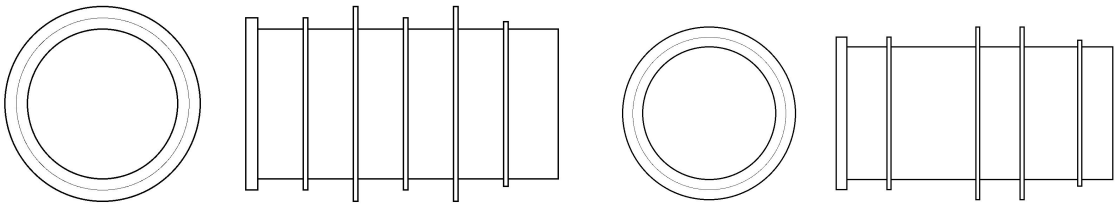

Figure 2 — Shafts with circular and irregular cross section

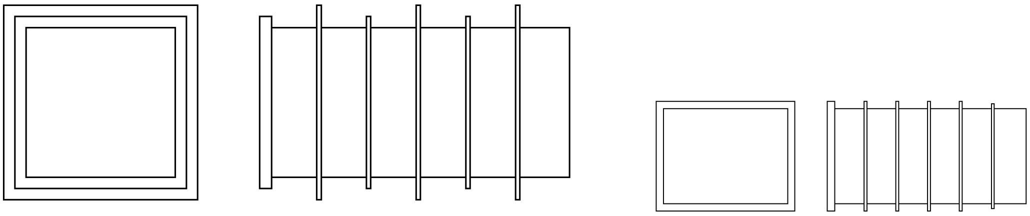

Figure 3 — Square and rectangular shaft

5.2.1 Loading frame, with two rigid parallel plates or beams between which a compressive force can be applied to the test piece so that the force and the resulting deflection of the test piece in the direction of the force can be measured with an accuracy of ±1 %.

Where a V-shaped support is used, the included angle shall be 170° or more.

For shafts with square or rectangular cross sections the bearers shall have a width W not greater than 25 mm.

For circular shafts with irregular cross section the maximum width of bearers shall be for:

DN/ID ≤ 400: 50 mm;

400 < DN/ID ≤ 1 200: 0,12 × [DN/ID], expressed in mm;

DN/ID > 1 200: 150 mm.

NOTE The above values have been taken from 9.2.1 of EN 476:1997 [3].

Where the outside of an irregular shaft has a change in cross-section incorporated within the test piece, the bearers shall be shaped to accommodate this (see Figure 4). Where square or rectangular shafts have a regular rib configuration this shall not be considered not to be a change in cross-section, and the load imposed shall be applied just to the crests of the ribs.

The centre of loading shall be so arranged that the vertical deflection of the two ends of the test piece differs by not more than 0,5 % of the nominal size of the shaft.

Where the surface of the outside of the shaft does not provide a smooth bearing contact, the bearers shall be surfaced with a strip, not less than 3 mm thick, of elastomeric material of (50 ± 5) IRHD hardness in accordance with ISO 48.

The length of each bearer shall be not less than the length of the test piece.