
Cevni sistemi iz polimernih materialov za odpadno vodo in kanalizacijo, ki delujejo po težnostnem principu in so položeni v zemljo - Plastomerni revizijski in vstopni jaški - Ugotavljanje obodne togosti (ISO 13268:2022)

Thermoplastics piping systems for non-pressure underground drainage and sewerage - Thermoplastics shafts or risers for inspection chambers and manholes - Determination of ring stiffness (ISO 13268:2022)

Kunststoff-Rohrleitungssysteme aus Thermoplasten für erdverlegte drucklose Abwasserkanäle und -leitungen - Schachtringe und Steigrohre für Kontroll- und Einsteigschächte aus Thermoplasten - Bestimmung der Ringsteifigkeit (ISO 13268:2022)

Systèmes de canalisations thermoplastiques pour branchements et collecteurs d'assainissement enterrés sans pression - Éléments de réhausse thermoplastiques pour chambres d'inspection et de branchement ou regards - Détermination de la rigidité annulaire (ISO 13268:2022)

Ta slovenski standard je istoveten z: prEN ISO 13268

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| 91.140.80 | Drenažni sistemi | Drainage systems |
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**Thermoplastics piping systems for
non-pressure underground drainage
and sewerage — Thermoplastics
shafts or risers for inspection
chambers and manholes —
Determination of ring stiffness**

iTeh STANDARD PREVIEW
(stable)

*Systèmes de canalisations thermoplastiques pour branchements
et collecteurs d'assainissement enterrés sans pression — Éléments
de réhausse thermoplastiques pour chambres d'inspection et de
branchement ou regards — Détermination de la rigidité annulaire*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 1, *Plastics pipes and fittings for soil, waste and drainage (including land drainage)*.

This second edition cancels and replaces the first edition (ISO 13268:2010), which has been technically revised.

The main changes are as follows:

- normative references have been updated;
- definitions have been revised;
- in [8.2](#), the calculation of the shape factor, S_F , has been changed for irregular sections;
- this document has been editorially revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Thermoplastics piping systems for non-pressure underground drainage and sewerage — Thermoplastics shafts or risers for inspection chambers and manholes — Determination of ring stiffness

1 Scope

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 48-2, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 2: Hardness between 10 IRHD and 100 IRHD*

ISO 9969, *Thermoplastics pipes — Determination of ring stiffness*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

regular cross-section shaft

circular riser shaft with a regular symmetrical design on their external surface

Note 1 to entry: These products can be either fabricated from plain pipe or from structured wall pipe or fittings.

3.2

irregular cross-section shaft

circular riser shaft with an irregular asymmetrical design on its external surface

Note 1 to entry: These products can include additional reinforcing rings or structures intended to strengthen the riser in specific areas.

4 Principle

4.1 General

The ring stiffness of a shaft with a regular cross-section is determined using the ISO 9969 test method.

Where a shaft has an irregular, square or rectangular cross-section, the ISO 9969 test shall be modified as described in this document to determine the ring stiffness (see [Table 1](#)).

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Table 1 — Relevant International Standards for determination of ring stiffness

| External shaft design | Type of cross-section | Relevant International Standard for determination of ring stiffness |
|-------------------------|--|---|
| Plain surface | Regular cross-section | ISO 9969 |
| | Irregular, square or rectangular cross-section | This document |
| Structured wall surface | Regular cross-section | ISO 9969 |
| | Irregular, square or rectangular cross-section | This document |

4.2 Principle for shafts with regular cross-section

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

A length of shaft supported horizontally shall be 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 shall be generated. The ring stiffness shall be calculated as a function of the force necessary to produce a deflection of $0,03d_i$ diametrically across the shaft.

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

The ring stiffness shall be determined by measuring the force and deflection while 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 %.

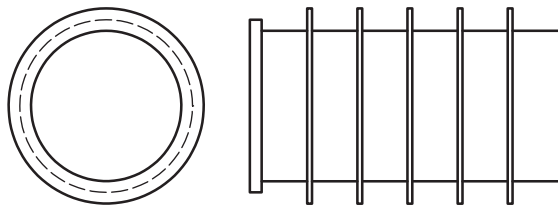
A riser shaft or segment of shaft shall be placed symmetrically between two rigid parallel plates or beams or, alternatively, between one rigid beam and a V-shaped support. A compressive force shall be applied to the shaft or segment using a bearer shaped to the external surface of the test piece.

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

5 Apparatus**5.1 Regular cross-section shaft**

The apparatus shall conform to that described in ISO 9969.

A typical shaft with regular cross-section is shown in [Figure 1](#).

**Figure 1 — Typical shaft with regular cross-section**

5.2 Irregular, square or rectangular cross-section shaft

5.2.1 Irregular cross-section shaft

Typical shafts with irregular cross-section are shown in [Figure 2](#).

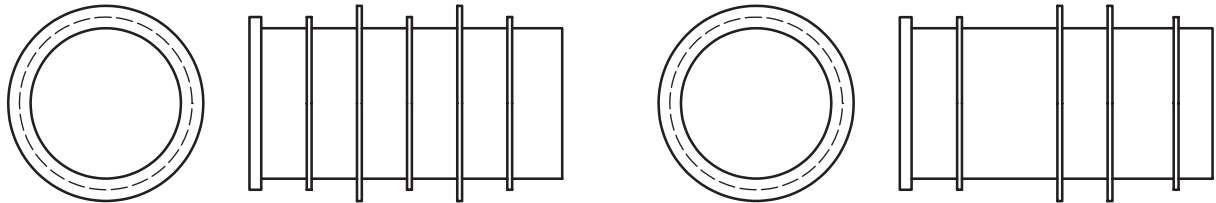


Figure 2 — Typical shafts with irregular cross-section

5.2.2 Square and rectangular cross-section shaft

Typical shafts with square and rectangular cross-section are shown in [Figure 3](#).

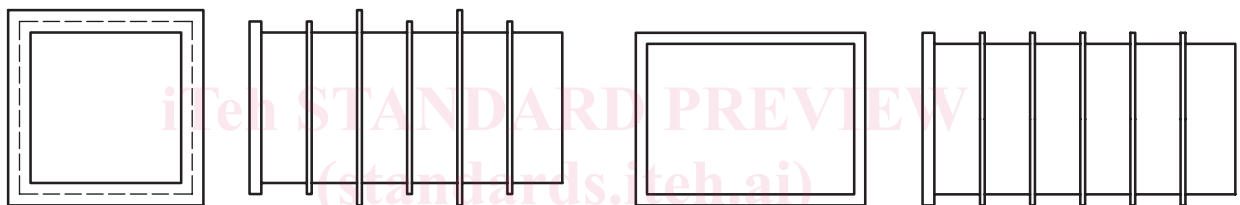


Figure 3 — Typical shafts with square and rectangular cross-section

5.3 Loading frame, with two rigid parallel plates or beams between which a compressive force, F , can be applied to the test piece such that the force and the resulting deflection of the test piece in the direction of the force can be measured to 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 shafts with irregular cross-section, the maximum width of bearers shall be for:

- $DN/ID \leq 400$: 50 mm;
- $400 < DN/ID \leq 1\,200$: $0,12 \times [DN/ID]$, expressed in millimetres (mm);
- $DN/ID > 1\,200$: 150 mm.

NOTE The above values have been taken from EN 476:1997, 9.2.1^[4].

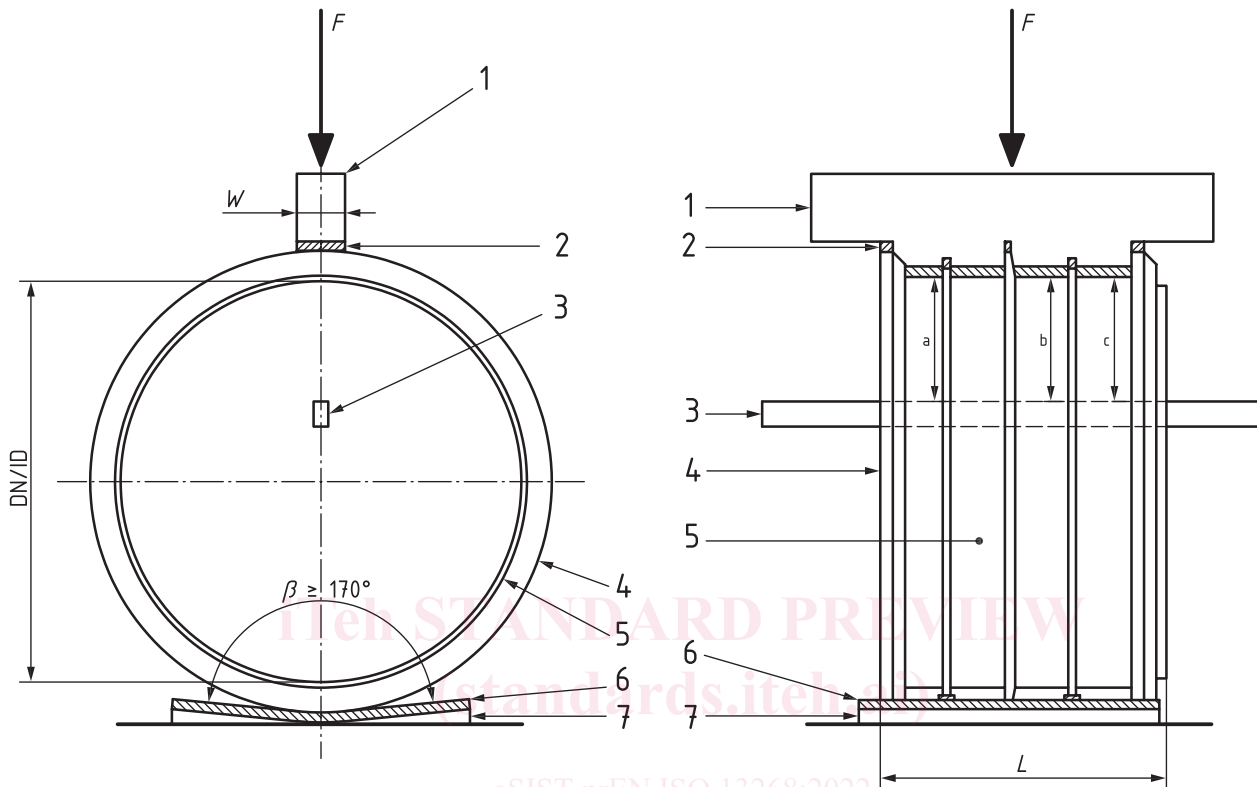
Where the outside of an irregular shaft has a change in cross-section incorporated within the test piece, the bearers shall be shaped to accommodate this (see [Figure 4](#)). Where square or rectangular shafts have a regular rib configuration, this shall not be considered to be a change in cross-section,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

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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 48-2.

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



Key

- | | | | |
|---|--|-----|-------------------------------|
| 1 | bearer, accommodated to shape of test piece | F | load, applied to upper bearer |
| 2 | elastomeric strips | L | length of test piece |
| 3 | reference beam, datum, for measuring | W | width of bearer |
| 4 | joint element, assembled, comprising standard sealing system of the manufacturer (note that this is an example, the sealing system can also be placed on the spigot end) | a | Measuring point 1. |
| 5 | test piece | b | Measuring point 2. |
| 6 | elastomeric material | c | Measuring point 3. |
| 7 | support | | |

Figure 4 — Example of a loading arrangement

5.4 Measuring devices, capable of determining the length to an accuracy of $\pm 0,5$ mm and the force and deflection along the length of the test piece to an accuracy of ± 1 % in the direction of the applied force.