



SLOVENSKI STANDARD

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Cevni sistemi iz polimernih materialov za odpadno vodo - S steklenimi vlakni ojačeni duromerni materiali (GRP), ki temeljijo na nenasičeni poliestrski smoli (UP) - Vstopni in revizijski jaški

Plastics piping systems for drainage and sewerage - Glass-reinforced thermosetting plastics (GRP) based on polyester resin (UP) - Manholes and inspection chambers

Kunststoff-Rohrleitungssysteme für Entwässerung und Kanalisation - Glasfaserverstärkte duroplastische Kunststoffe (GFK) auf Basis von Polyesterharz (UP) - Schächte und Kontrollschächte

Systèmes de canalisations en plastique pour les branchements et collecteurs d'assainissement - Plastiques thermodurcissables renforcés de verre (PRV) à base de résine de polyester (UP) - Regards et boîtes de branchement et d'inspection

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English Version

Plastics piping systems for drainage and sewerage - Glass-reinforced thermosetting plastics (GRP) based on polyester resin (UP) - Manholes and inspection chambers

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 155.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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prEN 15383:2025(E)**European foreword**

This document (prEN 15383:2025) has been prepared by Technical Committee CEN/TC 155 “Plastics piping systems and ducting systems”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15383:2012+A1:2013.

prEN 15383:2025 includes the following significant technical changes with respect to EN 15383:2012+A1:2013:

- References to EN 14364 have been replaced with references to EN ISO 23856;
- Specifying concrete in slabs have been removed.

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1 Scope

This document applies to

- a) manholes, when made from glass-reinforced thermosetting plastics (GRP) based on polyester resin (UP);
- b) inspection chambers, when made from glass-reinforced thermosetting plastics (GRP) based on polyester resin (UP) which are intended to be used with inverts which are at a depth not exceeding 2 m.

These products are intended to be used within a drain or sewer system operating without pressure or occasionally at a head of pressure up to 1 bar.

It applies to products, and their joints, intended for use in buried installations and to be installed by open-trench techniques.

The units have a circular shape with nominal sizes as specified in EN ISO 23856.

The intended use of these products is to provide access to, buried drain or sewer systems for the conveyance of waste water at temperatures up to 50 °C, without pressure or occasionally at a head of pressure up to 1 bar, outside buildings and installed in areas subjected to vehicle and/or pedestrian traffic.

It specifies definitions including symbols, requirements and characteristics of manholes, inspection chambers, joints, materials, test methods and marking.

NOTE It is the responsibility of the purchaser or specifier to make the appropriate selections, taking into account their particular requirements and any relevant national regulations and installation practices or codes.

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.

EN 124-1, *Gully tops and manhole tops for vehicular and pedestrian areas — Part 1: Definitions, classification, general principles of design, performance requirements and test methods*

EN 476, *General requirements for components used in drains and sewers*

EN 681-1, *Elastomeric seals — Materials requirements for pipe joint seals used in water and drainage applications — Part 1: Vulcanized rubber*

EN 1119, *Plastics piping systems — Joints for glass-reinforced thermosetting plastics (GRP) pipes and fittings — Test methods for leaktightness and resistance to damage of non-thrust resistant flexible joints with elastomeric sealing elements*

EN 1917, *Concrete manholes and inspection chambers, unreinforced, steel fibre and reinforced*

EN 13101, *Steps for underground man entry chambers — Requirements, marking, testing and evaluation of conformity*

EN ISO 23856, *Plastics piping systems for pressure and non-pressure water supply, drainage or sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin*

EN 14396, *Fixed ladders for manholes*

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CEN/TS 14632, *Plastics piping systems for drainage, sewerage and water supply, pressure and non-pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Guidance for the assessment of conformity*

EN ISO 604:2003, *Plastics — Determination of compressive properties (ISO 604:2002)*

EN ISO 3126, *Plastics piping systems — Plastics components — Determination of dimensions (ISO 3126)*

ISO 2602, *Statistical interpretation of test results — Estimation of the mean — Confidence interval*

ISO 8533, *Plastics piping systems for pressure and non-pressure drainage and sewerage — Glass-reinforced thermosetting plastics (GRP) systems based on unsaturated polyester (UP) resin — Test methods to prove the design of cemented or wrapped joints*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 23856 and the following 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 adjusting unit

component of a manhole used above the cover slab to adjust the height of the structure and accommodate a cover and frame (see Figure 2)

3.2 base unit

vertical component with integral base, with or without benching (see Figure 2), incorporating appropriate flexible joints to provide watertight connections to pipelines with or without integral connecting pipe(s) or adaptors

3.3 chamber unit

vertical component of uniform cross-section (see Figure 2)

Note 1 to entry: It is classified by its nominal size and its internal height. Chamber units may incorporate flexible joints providing watertight connections to a pipeline.

3.4 connecting pipe

short pipe having plain, socket or spigot ends which provides a connection between a pipeline and a manhole

3.5 cover slab

horizontal unit, forming the roof of a chamber or shaft, which incorporates an opening for access and above which adjusting unit(s) and/or a cover and frame are intended to fit (see Figure 2)

Note 1 to entry: Typically, a cover slab is made of reinforced precast concrete.

3.6 external diameter

d_e

mean external diameter of the shaft or chamber unit at any cross section except the joint

Note 1 to entry: External diameter is expressed in millimetres (mm).

3.7 inspection chamber

drainage or sewerage fitting used to connect drainage or sewerage installations and/or to change the direction of drainage or sewerage runs, which terminates at ground level with a riser shaft having an internal diameter not less than 200 mm and not more than 800 mm diameter (see Figure 2)

Note 1 to entry: The termination at ground level permits the introduction of cleaning, inspection and test equipment and the removal of debris but does not provide access for personnel.

3.8 internal diameter

d_i

external diameter of a unit minus twice its wall thickness

Note 1 to entry: Internal diameter is calculated using Formula (1) and expressed in millimetres:

$$d_i = d_e - 2e \quad (1)$$

where

d_e is the external diameter of the unit, expressed in millimetres (mm);

e is the wall thickness of the unit, expressed in millimetres (mm).

3.9 manhole

chamber, with a removable cover, constructed on a drain or sewer to permit entry by personnel (having an internal diameter not less than 800 mm) (see Figure 2)

Note 1 to entry: The termination at ground level permits the introduction of cleaning, inspection and test equipment and the removal of debris as well as providing access for personnel.

Note 2 to entry: Manhole components are subject to national safety regulations and/or local provisions regarding man-entry limitations. The installer should check for compliance prior to installation.

3.10 normal service conditions

conveyance of wastewater, at temperature up to 50 °C, without pressure

3.11 reducing slab

horizontal transition unit, forming the roof of a chamber, which incorporates an opening for access from the shaft to the chamber and above which shaft units are intended to fit (see Figure 2)

3.12 shaft unit

vertical component of uniform cross-section (see Figure 2)

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Note 1 to entry: When incorporated in a manhole together with chamber units shaft units have a smaller nominal size than the chamber units.

Note 2 to entry: Shaft units are classified by their nominal size and internal height (see Figure 2).

3.13**flexible joint**

joint which allows relative movement between the components being joined

EXAMPLE: Socket-and-spigot joint with an elastomeric sealing element (including double socket designs).

3.14**rigid joint**

joint which does not allow relative movement between the components being joined

EXAMPLE: Wrapped or cemented joint.

3.15**minimum specific initial longitudinal compressive stress at break** **$\sigma_{b,s,min}$**

manufacturers declared minimum value for the specific initial longitudinal compressive stress at break of the unit

Note 1 to entry: Minimum specific initial longitudinal compressive stress at break is expressed in megapascals (MPa).

3.16**initial longitudinal compressive stress at break (determined using prism test pieces)** **$\sigma_{s,b,u}$**

compressive stress at break of the test piece during a short-term compression test

Note 1 to entry: Initial longitudinal compressive stress at break (determined using prism test pieces) is expressed in megapascals (MPa).

3.17**ultimate longitudinal load** **F_{ult}**

calculated value of the concentric longitudinal load that the manhole or inspection chamber ring withstands just before break

Note 1 to entry: Ultimate longitudinal load is expressed in kilonewtons (kN).

3.18**longitudinal compressive (material) safety coefficient** **ν**

safety factor applied to the ultimate longitudinal load to determine the theoretical design load $F_{d,calc}$ (see 3.20)

3.19**design load** **F_d**

manufacturer's declared value of the longitudinal compressive load that a manhole or inspection chamber ring can withstand during operation, taking into account the material safety coefficient, ν (see 3.18)

Note 1 to entry: Design load is expressed in kilonewtons (kN) and is calculated using the following formula:

$$F_d = F_{ult} \times \nu$$

3.20 theoretical design load

$F_{d, calc}$

calculated value of the maximum concentric longitudinal compressive load that a manhole or inspection chamber ring can be expected to withstand during operation, taking into account the material safety coefficient, ν (see 3.18)

Note 1 to entry: Theoretical design load is expressed in kilonewtons (kN).

3.21 permissible eccentric force on the manhole or inspection chamber unit

$F_{perm,p}$

calculated value of the permissible eccentric longitudinal load that the manhole or inspection chamber ring can withstand in operation, taking into account the material safety coefficient, ν (see 3.18)

Note 1 to entry: Permissible eccentric force on the manhole or inspection chamber unit is expressed in kilonewtons (kN).

3.22 minimum cross-sectional area at the spigot

A_s

minimum pipe cross section of the spigot (see Figure 1) in square millimetres (mm²)

Note 1 to entry: Minimum cross-sectional area at the spigot is expressed in square millimetres (mm²).

Note 2 to entry: Minimum cross-sectional area at the spigot is calculated using Formula (2):

$$A_s = \pi [(0,5j_e)^2 - (0,5d_i)^2] \quad (2)$$

where

j_e is outside diameter of the joint, in millimetres (mm);

d_i is internal diameter of shaft or chamber unit, in millimetres (mm).