

<b>STN</b>	<b>Potrubné systémy z plastov na kanalizačné potrubia a stoky Sklené lamináty (GRP) na báze polyesterovej živice (UP) Vstupné šachty a revízne komory</b>	<b>STN EN 15383 + A1</b>  64 3159
------------	---	---

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

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

Kunststoff Rohrleitungssysteme für Abwasserleitungen und -kanäle. Glassfaserverstärkte duroplastische Kunststoffe (GFK) auf der Basis von Polyesterharz (UP). Einstieg- und Kontrollschächte

Táto norma obsahuje anglickú verziu európskej normy EN 15383: 2012 + A1: 2013 a má postavenie oficiálnej verzie.

This standard includes English version of the European Standard EN 15383: 2012 + A1: 2013 and has the status of official version.

#### **Nahradenie predchádzajúcich noriem**

Táto norma nahrádza STN EN 15383 z júna 2013 v celom rozsahu.

**118774**

Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, 2014

Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy rozmnožovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

## **Anotácia**

Táto norma uvádza definície používaných termínov (vrátane značiek), špecifikuje požiadavky a charakteristiky vstupných šácht a revízných komôr vyrobených zo sklenených laminátov (GRP) na báze polyesterevej živice (UP) (vrátane ich spojov a materiálov) a stanovuje aj ich skúšobné metódy a označovanie.

Norma platí na výrobky a ich spoje určené na použitie v stokách a kanalizačných potrubiach mimo budov, prevádzkovaných bez tlaku alebo s občasným tlakom do 1 baru pri teplotách až do 50 °C, ktoré sú zabudované do zeme metódami v otvorenom výkope, pričom revízne komory sú určené na použitie s dnami, ktoré sú v hĺbke neprekračujúcej 2 m. Dielce týchto výrobkov majú kruhový tvar s menovitou svetlosťou neprevyšujúcou maximálnu menovitú svetlosť špecifikovanú v EN 14364.

## Národný predhovor

Obrázky v tejto norme sú prevzaté z elektronických podkladov dodaných z CEN, © 2013 CEN, ref. č. EN 15383: 2012 + A1: 2013 E.

Norma obsahuje národnú prílohu NA.

## Citované normy

EN 124 zavedená v STN EN 124: 1997 Vtokové mreže dažďových vpustov a poklpy vstupných šácht pre pozemné komunikácie. Konštrukčné požiadavky, typové skúšanie, označovanie, kontrola kvality (13 6301)

EN 476 zavedená v STN EN 476: 2011 Všeobecné požiadavky na súčasti používané na kanalizačné potrubia a stoky (73 6735)

EN 681-1 zavedená v STN EN 681-1: 1998 Elastomérové tesnenia. Materiálové požiadavky na tesnenia spojov potrubí používaných na vodu a odvodnenie. Časť 1: Guma (63 6576)

EN 1119 zavedená v STN EN 1119: 2010 Potrubné systémy z plastov. Spojy rúr a tvaroviek zo sklenených laminátov (GRP). Skúšobné metódy tesnosti a odolnosti proti poškodeniu ťahovo neúnosných pružných spojov s elastomérovými tesniacimi prvkami (64 0638)

EN 1917 zavedená v STN EN 1917: 2003 Vstupné šachty a revízne komory z prostého betónu, z betónu vystuženého oceľovým vláknom a zo železobetónu (72 3146)

EN 13101 zavedená v STN EN 13101: 2004 Stúpadlá podzemných komôr so vstupom pre pracovníkov. Požiadavky, označovanie, skúšanie a hodnotenie zhody (74 3280)

EN 14364: 2006 + A1: 2008<sup>1)</sup> zavedená v STN EN 14364 + A1: 2009 Tlakové alebo beztlakové potrubné systémy z plastov pre kanalizačné potrubia a stoky. Sklené lamináty (GRP) na báze nenasýtenej polyesterovej živice (UP). Špecifikácie rúr, tvaroviek a spojov (Konsolidovaný text) (64 0653)

EN 14396 zavedená v STN EN 14396: 2004 Pevné rebríky do vstupných šácht (75 6240)

CEN/TS 14632 zavedená v STN P CEN/TS 14632: 2012 Potrubné systémy z plastov na tlakové a beztlakové kanalizačné potrubia a stoky a na zásobovanie vodou. Sklené lamináty (GRP) na báze nenasýtenej polyesterovej živice (UP). Odporúčania na posudzovanie zhody (64 3160)

EN ISO 604: 2003 zavedená v STN EN ISO 604: 2004 Plasty. Stanovenie ťahových vlastností (ISO 604: 2002) (64 0606)

EN ISO 3126 zavedená v STN EN ISO 3126: 2005 Plastové potrubné systémy. Plastové súčasti. Určenie rozmerov (ISO 3126: 2005) (64 3039)

ISO 2602 zavedená v STN ISO 2602: 1993 Štatistická interpretácia výsledkov skúšok. Odhad priemeru. Interval spoľahlivosti (01 0231)

ISO 8533 zavedená v STN ISO 8533: 2010 Rúry a tvarovky zo sklenených laminátov (GRP). Skúšobné metódy na overenie konštrukcie lepených alebo laminovaných spojov (64 0651)

## Vypracovanie normy

Spracovateľ: VUIS – Vodovody a kanalizácie, spol. s r.o., Ing. Ján Pašek

Slovenský ústav technickej normalizácie, Bratislava

Technická komisia: TK 26 Rúry, tvarovky a armatúry z plastov

TK 1 Vodovody a kanalizácie

<sup>1)</sup> V čase vydania tejto normy bola platná norma EN 14364: 2013 zavedená v STN EN 14364: 2013 (64 0653).



EUROPEAN STANDARD

**EN 15383:2012+A1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2013

ICS 93.030

Supersedes EN 15383:2012

English Version

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

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

Kunststoff-Rohrleitungssysteme für Abwasserleitungen und -kanäle - Glasfaserverstärkte duroplastische Kunststoffe (GFK) auf der Basis von Polyesterharz (UP) - Einsteig- und Kontrollschächte

This European Standard was approved by CEN on 27 October 2012 and includes Amendment 1 approved by CEN on 10 September 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

# Contents

Page

<b>Foreword</b> .....	<b>4</b>
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Terms, definitions and symbols</b> .....	<b>6</b>
<b>4 General requirements</b> .....	<b>12</b>
4.1 Classification .....	12
4.1.1 Categories .....	12
4.1.2 Nominal stiffness .....	12
4.2 Materials for shaft or chamber units.....	12
4.2.1 General.....	12
4.2.2 Elastomers .....	12
4.2.3 Metals.....	12
4.3 Reference conditions for testing .....	13
4.3.1 Temperature.....	13
4.3.2 Properties of water for testing .....	13
4.3.3 Loading conditions .....	13
4.3.4 Preconditioning .....	13
4.3.5 Measurement of dimensions .....	13
4.4 Joints .....	13
4.4.1 Types of joint.....	13
4.4.2 Length and diameter of joint .....	13
4.4.3 Flexibility of the jointing system .....	13
4.4.4 Sealing ring .....	13
4.4.5 Adhesives.....	13
4.5 Joint performance .....	14
4.5.1 Performance requirements .....	14
4.5.2 Interchangeability .....	14
4.5.3 Test pieces.....	15
4.5.4 Number of test pieces for type test purposes .....	15
4.5.5 Test temperature.....	15
4.5.6 Flexible joints with elastomeric sealing rings .....	15
4.5.7 Rigid joints of the wrapped or cemented type.....	15
4.5.8 Test parameters .....	15
<b>5 Geometrical characteristics</b> .....	<b>16</b>
5.1 Diameter, wall thickness and length of GRP-UP shaft and chamber components — Dimensional requirement.....	16
5.2 Size of openings in manholes .....	16
<b>6 Mechanical characteristics</b> .....	<b>16</b>
6.1 General .....	16
6.2 Longitudinal compressive strength .....	16
6.2.1 Initial longitudinal compressive stress at break .....	16
6.2.2 Requirements.....	16
6.3 Longitudinal compressive load.....	17
6.3.1 General.....	17
6.3.2 Ultimate longitudinal load, $F_{ult}$ .....	17
6.3.3 Manufacturer's declared load for which a manhole or inspection chamber ring is designed, $F_j$ and the permissible force, $F_{perm, p}$ .....	17

<b>7</b>	<b>Leak-tightness of manholes and inspection chambers and their joints</b> .....	<b>18</b>
<b>8</b>	<b>Minimum required marking</b> .....	<b>18</b>
<b>9</b>	<b>Ancillary products</b> .....	<b>19</b>
9.1	Manhole and inspection chamber tops.....	19
9.2	Manhole steps and ladders.....	19
9.2.1	Location of steps.....	19
9.2.2	Load bearing capacity of installed steps.....	20
9.3	Precast concrete components .....	21
<b>10</b>	<b>Dangerous substances</b> .....	<b>21</b>
<b>11</b>	<b>Manufacturer's installation recommendations</b> .....	<b>21</b>
<b>12</b>	<b>Evaluation of conformity</b> .....	<b>21</b>
<b>Annex A (normative) Determination of the longitudinal compressive properties measured on prism shaped test pieces</b> .....		<b>22</b>
A.1	Scope .....	22
A.2	General .....	22
A.3	Test-pieces .....	22
A.4	Test equipment .....	25
A.5	Test procedure.....	25
A.6	Calculation and expression of results .....	25
A.7	Test report.....	26
<b>Annex B (normative) Determination of the resistance of installed steps to vertical or horizontal loading</b> ..		<b>27</b>
B.1	Scope .....	27
B.2	Principle .....	27
B.3	Apparatus.....	27
B.4	Preparation .....	27
B.5	Procedure .....	28
B.6	Test report.....	29

**EN 15383:2012+A1:2013 (E)****Foreword**

This document (EN 15383:2012+A1:2013) 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 April 2014, and conflicting national standards shall be withdrawn at the latest by April 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15383:2012.

This document includes Amendment 1 approved by CEN on 2013-09-10.

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

This European Standard is a System Standard for manholes and inspection chambers made for plastics piping systems using glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP), for drainage and sewerage.

For manholes and inspection chambers, which have conformed to the relevant national standard before the date of availability (2012-12-05), as shown by the manufacturer or by a certification body, the national standard may continue to be applied until the (2014-12-19).

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard 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 not exceeding the maximum nominal size specified in EN 14364.

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, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 124, *Gully tops and manhole tops for vehicular and pedestrian areas — Design requirements, type testing, marking, quality control*

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 14364:2006+A1:2008, *Plastics piping systems for drainage and sewerage with or without pressure — Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) — Specifications for pipes, fittings and joints*

EN 14396, *Fixed ladders for manholes*

**EN 15383:2012+A1:2013 (E)**

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*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**