

SLOVENSKI STANDARD

SIST EN 16932-1:2018

01-junij-2018

Nadomešča:

SIST EN 1091:2000

SIST EN 1671:1998

**Sistemi za odvod odpadne vode in kanalizacijo zunaj stavb - Črpalni sistemi - 1.
del: Splošne zahteve**

Drain and sewer systems outside buildings - Pumping systems - Part 1: General requirements

Entwässerungssysteme außerhalb von Gebäuden - Pumpsysteme - Teil 1: Allgemeine Anforderungen

Réseaux d'évacuation et d'assainissement à l'extérieur des bâtiments - Systèmes de pompage - Partie 1 : Exigences générales

Ta slovenski standard je istoveten z: EN 16932-1:2018

ICS:

93.030	Zunanji sistemi za odpadno vodo	External sewage systems
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SIST EN 16932-1:2018

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 16932-1

April 2018

ICS 93.030

Supersedes EN 1091:1996, EN 1671:1997

English Version

**Drain and sewer systems outside buildings - Pumping
systems - Part 1: General requirements**

Réseaux d'évacuation et d'assainissement à l'extérieur
des bâtiments - Systèmes de pompage - Partie 1:
Exigences générales

Entwässerungssysteme außerhalb von Gebäuden -
Pumpsysteme - Teil 1: Allgemeine Anforderungen

This European Standard was approved by CEN on 22 January 2018.

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.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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EN 16932-1:2018 (E)

European foreword

This document (EN 16932-1:2018) has been prepared by Technical Committee CEN/TC 165 “Waste water engineering”, the secretariat of which is held by DIN.

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 October 2018, and conflicting national standards shall be withdrawn at the latest by October 2018.

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

Together with EN 16932-2:2018 and EN 16932-3:2018, this document supersedes EN 1091:1996 and EN 1671:1997.

EN 16932, *Drain and sewer systems outside buildings — Pumping systems*, contains the following parts:

- *Part 1: General requirements;*
- *Part 2: Positive pressure systems;*
- *Part 3: Vacuum systems.*

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According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Drain and sewer systems are part of the overall wastewater system that provides a service to the community. This can be briefly described as:

- removal of wastewater from premises for public health and hygienic reasons;
- prevention of flooding in urbanised areas;
- protection of the environment.

The overall wastewater system has four successive functions:

- collection;
- transport;
- treatment;
- discharge.

Collection and transport of wastewater is provided by drain and sewer systems.

EN 752 provides a framework for the design, construction, maintenance, operation and rehabilitation of drain and sewer systems outside buildings. This is illustrated in the upper part of the diagram in Figure 1. EN 752 is supported by more detailed standards for the investigation, design, construction, organization and control of drain and sewer systems.

Investigation and assessment standards include:

- EN 13508 (all parts), *Investigation and assessment of drain and sewer systems outside buildings*.

Design and construction standards include:

- EN 16932 (all parts), *Drain and sewer systems outside buildings — Pumping systems*;
- EN 16933-2, *Drain and sewer systems outside buildings — Design — Part 2: Hydraulic design*;
- EN 1295-1, *Structural design of buried pipelines under various conditions of loading - Part 1: General requirements*;
- EN 1610, *Construction and testing of drains and sewers*;
- EN 12889, *Trenchless construction and testing of drains and sewers*;
- EN 15885, *Classification and characteristics of techniques for renovation and repair of drains and sewers*.

Management and control standards include:

- EN 14654 (all parts), *Management and control of operational activities in drain and sewer systems outside buildings*.

To support these detailed standards information can come from specifications produced by individual organisations for their own use. Product standards take also into account the functional requirements in EN 752 through EN 476, EN 13380 and EN 14457.

EN 16932-1:2018 (E)

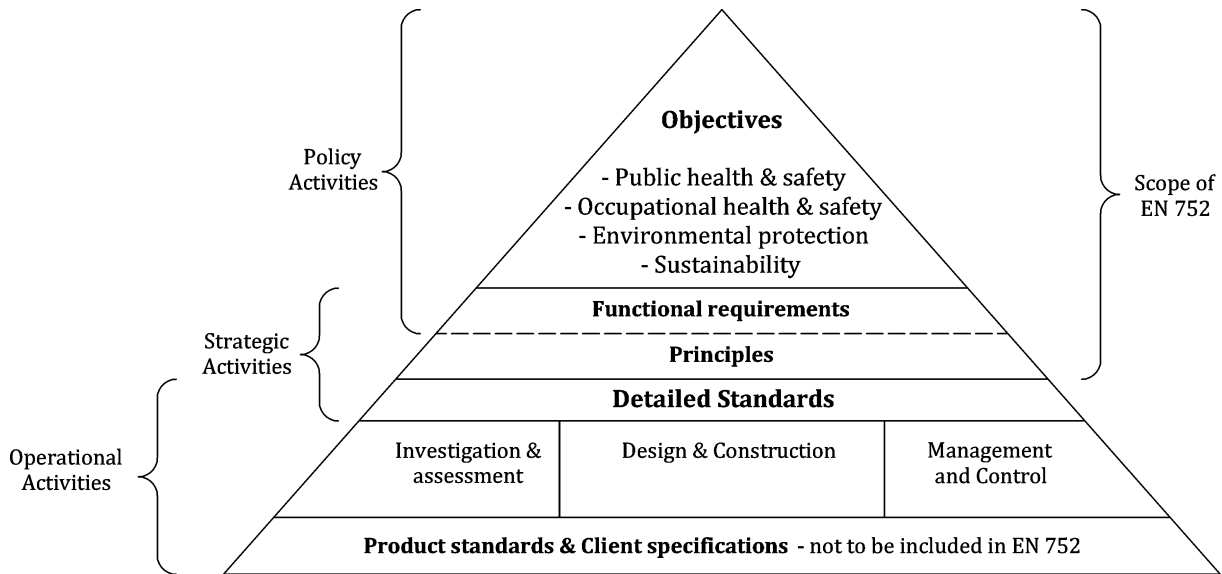


Figure 1 —Relationship to EN 752:2017 and other drain and sewer standards
[Source: EN 752:2017]

Wastewater lifting installations in buildings and on private properties are in the scope of EN 12050 (all parts).

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1 Scope

This European Standard specifies requirements for design, construction and acceptance testing of wastewater pumping systems in drain and sewer systems outside the buildings they are intended to serve. It includes pumping systems in drain and sewer systems that operate essentially under gravity as well as systems using either positive pressure or partial vacuum.

This document gives general requirements applicable to all wastewater pumping systems in drain and sewer systems.

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 752:2017, *Drain and sewer systems outside buildings — Sewer system management*

EN 1127-1, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*

EN 1295-1, *Structural design of buried pipelines under various conditions of loading — Part 1: General requirements*

EN 1610, *Construction and testing of drains and sewers*

EN 1990, *Eurocode — Basis of structural design*

EN 1991 (all parts), *Eurocode 1: Actions on structures*

EN 12889, *Trenchless construction and testing of drains and sewers*

EN 13463 (all parts), *Non-electrical equipment for use in potentially explosive atmospheres*

EN 14654 (all parts), *Management and control of operational activities in drain and sewer systems outside buildings*

EN 16323:2014, *Glossary of wastewater engineering terms*

EN 16932-2, *Drain and sewer systems outside buildings — Pumping systems — Part 2: Positive pressure systems*

EN 16932-3, *Drain and sewer systems outside buildings — Pumping systems — Part 3: Vacuum systems*

EN 60079 (all parts), *Explosive atmospheres — Part 0: Equipment — General requirements (IEC 60076 series)*

EN 60204-1, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN 61439-1, *Low-voltage switchgear and controlgear assemblies — Part 1: General rules (IEC 61439-1)*

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EN 61439-2, *Low-voltage switchgear and controlgear assemblies — Part 2: Power switchgear and controlgear assemblies (IEC 61439-2)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16323 and the following apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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

Note 1 to entry: Certain key definitions from EN 16323:2014 have been repeated below for clarity. The following additional terms used in this document are defined in EN 16323:

aerobic;	outfall;
collection tank;	pumping station;
combined sewer overflow;	relevant authority;
confined space;	rising main;
detention tank;	self-cleansing;
drain;	septic wastewater;
dry weather flow;	sewer;
extraneous flow;	sewer system;
industrial wastewater;	surface receiving water body;
maintenance;	wastewater treatment plant;
manhole;	

- 3.1 collection chamber**
chamber containing a collection tank and associated pump or interface valve unit
- 3.2 controller**
device that activates a pump or interface valve
- 3.3 duty point**
target values of the total head or pressure of the pump and the rate of flow for which the pump is designed or selected

[SOURCE: EN ISO 17769-1:2012, 2.1.13.1]

- 3.4 forwarding pump**
<vacuum systems> pump transporting wastewater from a vacuum system to a wastewater treatment plant, or another drain or sewer system

3.5**foul wastewater**

wastewater comprising domestic wastewater and/or industrial wastewater

[SOURCE: EN 16323:2014, 2.1.2.6]

3.6**interface valve**

<vacuum systems> valve in a collection chamber admitting wastewater and air into a vacuum sewer through a vacuum drain

3.7**level sensor**

device sensing the level of wastewater in a collection tank and activating a controller when a batch volume has accumulated in the collection tank

3.8**lift section**

<vacuum systems> section of a vacuum pipeline with an increase in invert level in the direction of flow

3.9**lift station**

pumping system that raises the elevation of the flow at a location

3.10**low voltage**

voltage rating of between 50 V and 1 000 V for alternating current and between 75 V and 1 500 V for direct current

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3.11**profile**

<of a pipeline> vertical alignment of a pipeline

3.12**pump**

mechanical device for moving fluids, including inlet and outlet connections as well as, in general, a shaft end

3.13**pump unit**

assemblage of mechanical devices, including the pump and the driver, together with transmission elements, baseplate and any auxiliary equipment

[SOURCE: EN ISO 17769-1:2012, 2.1.1.2]

3.14**pump driver****driver**

machine supplying mechanical energy to power the pump

[SOURCE: EN ISO 17769-1:2012, 2.1.17.23]

EN 16932-1:2018 (E)**3.15****pumping system**

system consisting of a pump or pumps and those interacting or interrelating elements, which together accomplish the specified work

Note 1 to entry: The pumping system generally includes (but is not necessarily limited to) the pump driver, drives, cabling, control and monitoring devices and those piping elements that transfer liquid from and to the pump.

[SOURCE: EN ISO 17769-2:2012, 2.1.7]

3.16**slope section**

<vacuum systems> section of a vacuum pipeline with decreasing invert level in the direction of flow

3.17**surface water**

water from precipitation, which has not seeped into the ground and is discharged to the drain or sewer system directly from the ground or from exterior building surfaces

[SOURCE: EN 16323:2014, 2.1.1.3]

3.18**vacuum generator**

<vacuum systems> equipment installed at a vacuum station to generate sub-atmospheric pressure

3.19**vacuum pipeline**

<vacuum systems> pipeline for conveying wastewater under sub-atmospheric pressure

3.20**vacuum drain**

<vacuum systems> drain that is a vacuum pipeline

3.21**vacuum sewer**

<vacuum systems> sewer that is a vacuum pipeline

3.22**vacuum station**

<vacuum systems> part of a vacuum sewer system generating sub-atmospheric pressure and forwarding wastewater through a rising main

3.23**vacuum vessel**

<vacuum systems> vessel connected to a vacuum sewer in which a vacuum generator maintains sub-atmospheric pressure and from which a forwarding pump removes wastewater

3.24**wastewater**

water composed of any combination of water discharged from domestic, industrial or commercial premises, surface run-off and accidentally any sewer infiltration water

[SOURCE: EN 16323:2014, 2.3.10.65]