

ILNAS

Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 16932-3:2018

Drain and sewer systems outside buildings - Pumping systems - Part 3: Vacuum systems

Entwässerungssysteme außerhalb von
Gebäuden - Pumpsysteme - Teil 3:
Unterdruckentwässerungssysteme

Réseaux d'évacuation et
d'assainissement à l'extérieur des
bâtiments - Systèmes de pompage -
Partie 3: Systèmes sous vide

04/2018



National Foreword

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EUROPEAN STANDARD ^{ILNAS-EN 16932-3:2018} **EN 16932-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2018

ICS 93.030

Supersedes EN 1091:1996, EN 1671:1997

English Version

Drain and sewer systems outside buildings - Pumping systems - Part 3: Vacuum systems

Réseaux d'évacuation et d'assainissement à l'extérieur
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Systèmes sous vide

Entwässerungssysteme außerhalb von Gebäuden -
Pumpsysteme - Teil 3:
Unterdruckentwässerungssysteme

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

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Contents

Page

European foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Symbols and units	7
5 General	8
6 Planning vacuum sewer systems	8
6.1 Basis of design	8
6.2 Location of collection chambers	8
6.3 Route and profile of vacuum pipelines	9
6.4 Hydro pneumatic design of the system	11
6.5 Vacuum station design	13
6.5.1 General	13
6.5.2 Sizing the vacuum vessel for flushing activities	16
6.6 Power consumption	17
7 Collection chambers on vacuum sewer systems	18
7.1 General	18
7.2 Collection chambers	18
7.3 Interface valve units	20
7.4 Explosion safety	20
7.5 Life of membranes and seals	21
8 Vacuum pipelines	21
8.1 Vacuum drain connections	21
8.2 Branch connections	21
8.3 Means of isolation	22
9 Detailed design of vacuum stations	22
9.1 Selection of type of vacuum pumping station	22
9.2 Vacuum vessel	23
9.3 Forwarding equipment	23
9.4 Non-return valves	23
9.5 Vacuum pumps	23
10 Controls, electrical equipment and instrumentation	25
10.1 Collection chamber controls	25
10.1.1 Level sensor	25
10.1.2 Interface valve controller	25
10.1.3 Monitoring of the interface valve	26
10.2 Vacuum station control	26
10.3 Explosion safety	26
11 Installation	27
12 Testing and verification	27
12.1 Collection chambers	27
12.2 Interface valve units	27

12.3	Vacuum pipelines	27
12.4	Commissioning tests.....	27
13	Operation and maintenance	28
13.1	General	28
13.2	Maintenance	28
13.3	Operation and maintenance manual.....	28
13.4	Power consumption.....	29
	Annex A (informative) Example of a dimensioning model	30
	Annex B (normative) Testing of vacuum sewer system.....	32
B.1	Testing of interface valve unit.....	32
B.1.1	Testing requirements.....	32
B.1.2	Preliminary checks	32
B.1.3	Endurance test.....	32
B.1.3.1	Test rig description.....	32
B.1.3.2	Test procedure	32
B.1.4	Resistance to blockage test	33
B.1.5	Submergence test	33
B.2	Testing of pipelines.....	33
B.2.1	Calibrating test equipment	33
B.2.2	General	34
B.2.3	Interim testing	34
B.2.4	Final testing	34
B.3	Leak testing of collection chambers.....	34
B.4	Commissioning tests.....	34
B.4.1	General	34
B.4.2	Noise	34
B.4.3	Minimum vacuum and vacuum recovery time.....	34
B.4.4	Air/water ratio	35
B.4.5	Operation of vacuum station controls.....	35
B.4.6	Replacement times.....	35
	Bibliography	36

European foreword

This document (EN 16932-3:2018) 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 16932-1:2018 and EN 16932-2:2018, this document will supersede EN 1091:1996 and EN 1671:1997.

EN 16932:2018, *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.*

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.

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 is applicable to vacuum 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 476, *General requirements for components used in drains and sewers*

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

EN 16932-1:2018, *Drain and sewer systems outside buildings — Pumping systems — Part 1: General requirements*

EN 16932-2:2018, *Drain and sewer systems outside buildings — Pumping systems — Part 2: Positive pressure systems*

EN 16933-2, *Drain and sewer systems outside buildings — Design — Part 2: Hydraulic design*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16323, in EN 16932-1 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:

collection tank;	pumping station;
domestic wastewater;	relevant authority;
extraneous flow;	rising main;
gradient;	runoff;
gravity system;	self-cleansing;
infiltration;	sewer;
maintenance;	sewer system.
non-domestic wastewater;	

Note 2 to entry: The following terms used in this standard are defined in EN 16932-1:

collection chamber;	level sensor;
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controller;	lift section;
forwarding pump;	profile;
interface valve;	pump;
pump unit;	vacuum drain;
slope section;	vacuum sewer;
vacuum generator;	vacuum station,
vacuum pipeline;	vacuum vessel.

3.1 air/water ratio (AWR)

ratio of the air volume at standard temperature and pressure to the volume of wastewater

3.2 batch volume

wastewater volume in a collection tank that is removed during an evacuation cycle

3.3 foul wastewater

wastewater comprising domestic wastewater and/or industrial wastewater

[SOURCE: EN 16323:2014, 2.1.2.6]

3.4 interface valve unit

valve and controller in a collection chamber admitting wastewater and air into a vacuum sewer through a vacuum drain

3.5 length specific population density

total population connected to a vacuum sewer, including its branches, divided by the length of the vacuum sewer, not including side branches

3.6 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]

3.7 vacuum recovery time

time taken, after the operation of an interface valve, for the sub-atmospheric pressure at the valve to be restored to a value sufficient to operate the valve again

3.8 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]