

# ILNAS

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

**ILNAS-EN 16932-2:2018**

## **Drain and sewer systems outside buildings - Pumping systems - Part 2: Positive pressure systems**

Réseaux d'évacuation et  
d'assainissement à l'extérieur des  
bâtiments - Systèmes de pompage -  
Partie 2: Systèmes sous pression

Entwässerungssysteme außerhalb von  
Gebäuden - Pumpsysteme - Teil 2:  
Druckentwässerungssysteme

**04/2018**



## National Foreword

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EUROPEAN STANDARD <sup>ILNAS-EN 16932-2:2018</sup> **EN 16932-2**

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## Drain and sewer systems outside buildings - Pumping systems - Part 2: Positive pressure systems

Réseaux d'évacuation et d'assainissement à l'extérieur  
des bâtiments - Systèmes de pompage - Partie 2:  
Systèmes sous pression

Entwässerungssysteme außerhalb von Gebäuden -  
Pumpsysteme - Teil 2: Druckentwässerungssysteme

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

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

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## European foreword

This document (EN 16932-2:2018) 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of an identical text or by endorsement, at the latest by October 2018, and conflicting national standards shall be withdrawn at the latest by October 2018.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 16932-3:2018, 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.*

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 positive pressure 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 1610:2015, *Construction and testing of drains and sewers*

EN 12050-1:2015, *Wastewater lifting plants for buildings and sites — Part 1: Lifting plants for wastewater containing faecal matter*

EN 12050-2, *Wastewater lifting plants for buildings and sites — Part 2: Lifting plants for faecal-free wastewater*

EN 12050-3, *Wastewater lifting plants for buildings and sites — Part 3: Lifting plants for limited applications*

EN 12050-4, *Wastewater lifting plants for buildings and sites — Part 4: Non-return valves for faecal-free wastewater and wastewater containing faecal matter*

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 16933-2:2017, *Drain and sewer systems outside buildings — Design — Part 2: Hydraulic design*

EN ISO 9906:2012, *Rotodynamic pumps — Hydraulic performance acceptance tests — Grades 1, 2 and 3 (ISO 9906:2012)*

## 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:

aerobic;	maintenance;
anaerobic;	pumping station;

collection tank;	relevant authority;
combined system;	retention period;
confined space;	rising main;
drain;	septic wastewater;
dry weather flow;	sewer;
extraneous flow;	sewer system;
gradient;	wastewater treatment plant.
infiltration;	

Note 2 to entry: The following terms used in this part of this standard are defined in EN 16932-1:2018:

collection chamber;	pump;
duty point;	pump unit
forwarding pump;	pumping system;
level sensor;	vacuum station.
lift station;	
profile;	

### 3.1

#### **ball passage**

passage where a ball with a defined diameter can pass through without deformation

[SOURCE: EN 12050-1:2015, 3.1.9]

### 3.2

#### **foul wastewater**

wastewater comprising domestic wastewater and/or industrial wastewater

[SOURCE: EN 16323:2014, 2.1.2.6]

### 3.3

#### **net positive suction head**

##### ***NPSH***

amount of the absolute value of the total head above the head equivalent to the vapour pressure of the liquid at the particular temperature, with reference to the NPSH-datum plane

[SOURCE: EN ISO 17769-1:2012, 2.2.2.1]

### 3.4

#### **NPSH datum plane**

horizontal plane through the centre of the circle described by the external points of the entrance edges of the impeller blades, in the first stage in the case of multi-stage pumps

[SOURCE: EN ISO 17769-1:2012, 2.2.2.1]

### 3.5

#### **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