



**SLOVENSKI STANDARD**  
**SIST EN 12380:2003**  
**01-oktober-2003**

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Air admittance valves for drainage systems - Requirements, tests methods and evaluation of conformity

Belüftungsventile für Entwässerungssysteme - Anforderungen, Prüfverfahren und Konformitätsbewertung

Clapets équilibrés de pression pour systèmes d'évacuation - Exigences, méthodes d'essais et évaluation de conformité

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**Ta slovenski standard je istoveten z: EN 12380:2002**

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**ICS:**

23.060.99	Drugi ventili	Other valves
91.140.80	Drenažni sistemi	Drainage systems

**SIST EN 12380:2003** en

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ICS 23.060.99; 91.140.80

English version

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Anforderungen, Prüfverfahren und Konformitätsbewertung

This European Standard was approved by CEN on 23 September 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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## Contents

	page
Foreword.....	4
Introduction .....	5
1 Scope .....	5
2 Normative references .....	5
3 Terms, definitions and symbols .....	6
3.1 Terms and definitions.....	7
3.2 Symbols .....	7
4 Types of air admittance valves.....	7
5 Requirements .....	8
5.1 General.....	8
5.2 Connections .....	8
5.3 Airtightness .....	8
5.4 Durability.....	8
5.5 Effectiveness.....	8
6 Test methods.....	8
6.1 General procedure .....	9
6.1.1 Sampling for tests.....	9
6.1.2 Test methods.....	9
6.2 Drop test .....	9
6.2.1 Method .....	9
6.2.2 Criteria.....	10
6.3 Air tightness test.....	10
6.3.1 Apparatus .....	10
6.3.2 Method .....	11
6.3.3 Criteria.....	12
6.4 Endurance and temperature test.....	12
6.4.1 Apparatus .....	12
6.4.2 Method .....	13
6.4.3 Criteria.....	14
6.5 Opening characteristic and airflow capacity test .....	14
6.5.1 Apparatus .....	14
6.5.2 Method .....	15
6.5.3 Criteria.....	15
6.6 Test for effectiveness at temperatures below zero .....	15
6.6.1 Apparatus .....	15
6.6.2 Test method.....	16
6.6.3 Criteria.....	17
7 Marking, labelling and packaging .....	17
8 Evaluation of conformity .....	17
8.1 General.....	17
8.2 Initial type testing (type testing).....	18
8.3 Factory production control (internal quality control).....	18
Annex A (normative) Model test report.....	19
Annex ZA (informative) Clauses of this European Standard addressing the provisions of EU Directives .....	20
ZA.1 Scope and relevant characteristics .....	20

ZA.2	Procedure(s) for the attestation of conformity of products .....	21
ZA.2.1	System of attestation of conformity .....	21
ZA.2.2	Declaration of conformity .....	22
ZA.3	CE marking and labelling .....	22
	Bibliography .....	24

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SIST EN 12380:2003

<https://standards.iteh.ai/catalog/standards/sist/b79542cc-9921-4b7f-aa78-78fd3e937f54/sist-en-12380-2003>

## Foreword

This document (EN 12380:2002) has been prepared by Technical Committee CEN/TC 165 "Wastewater 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 June 2003, and conflicting national standards shall be withdrawn at the latest by September 2005.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

After enquiry of the draft standards prEN 12380-1 and prEN 12380-2, CEN/TC 165 decided to move requirements on ventilating of drainage systems to EN 120562 and EN 12056-5 and continued the work with the product standard EN 12380 with the new title "*Air admittance valves for drainage systems — Requirements, tests methods and evaluation of conformity*". This document is the result of this decision.

According to the Mandate M118 "Waste Water Engineering Products", issued by the Commission to CEN within the context of the Council Directive of 21 December on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (89/106/EEC), the annex ZA was added, which shows the clauses of this European Standard addressing the provisions of the EU Directive.

Annex A is normative.

SIST EN 12380:2003

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

The purpose of an air admittance valve is to provide a method to protect water traps in gravity drainage systems by allowing air to enter the system when a negative pressure develops in the pipework, as an alternative to the use of pipework for ventilation.

## 1 Scope

This European Standard establishes requirements, test methods and evaluation of conformity for air admittance valves to be used in drainage systems installed inside buildings in accordance with EN 12056-2 and EN 12056-5.

It specifies the performance requirements of air admittance valves and how to test them to demonstrate compliance with this standard.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

EN 681-2, *Elastomeric seals — Material requirements for pipe joints seals used in water and drainage applications — Part 2: Thermoplastic elastomers.*

EN 681-3, *Elastomeric seals — Material requirements for pipe joints seals used in water and drainage applications — Part 3: Cellular materials of vulcanized rubber.*

EN 681-4, *Elastomeric seals - Materials requirements for pipe joint seals used in water and drainage applications - Part 4: Cast polyurethane sealing elements.*

EN 877, *Cast iron pipes and fittings, their joints and accessories for the evacuation of water from buildings — Requirements, test methods and quality assurance.*

EN 1123-1, *Pipes and fittings of longitudinally welded hot-dip galvanized steel pipes with spigot and socket for wastewater systems — Part 1: Requirements, testing, quality control.*

EN 1123-2, *Pipes and fittings of longitudinally welded hot-dip galvanized steel pipes with spigot and socket for wastewater systems — Part 2: Dimensions.*

EN 1124-1, *Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for wastewater systems — Part 1: Requirements, testing, quality control.*

EN 1124-2, *Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for wastewater systems — Part 2: System S — Dimensions.*

EN 1124-3, *Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for wastewater systems — Part 3: System X — Dimensions.*

## EN 12380:2002 (E)

EN 1329-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Unplasticized poly(vinyl chloride) (PVC-U) — Part 1: Specifications for pipes, fittings and the system.*

ENV 1329-2, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly(vinyl chloride) (PVC-U) - Part 2: Guidance for the assessment of conformity.*

EN 1451-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polypropylene (PP) — Part 1: Specifications for pipes, fittings and the system.*

ENV 1451-2, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) - Part 2: Guidance for the assessment of conformity.*

EN 1453-1, *Plastics piping systems with structured-wall pipes for soil and waste discharge (low and high temperature) inside buildings — Unplasticized poly(vinyl chloride) (PVC-U) — Part 1: Specifications for pipes, fittings and the system.*

ENV 1453-2, *Plastics piping systems with structured wall pipes for soil and waste discharge (low and high temperature) inside buildings - Unplasticized poly(vinyl chloride) (PVC-U) - Part 2: Guidance for the assessment of conformity.*

EN 1455-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Acrylonitrile-butadiene-styrene (ABS) — Part 1: Specifications for pipes, fittings and the system.*

ENV 1455-2, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Acrylonitrile-butadiene-styrene (ABS) - Part 2: Guidance for the assessment of conformity.*

EN 1519-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polyethylene (PE) — Part 1: Specifications for pipes, fittings and the system.*

ENV 1519-2, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polyethylene (PE) - Part 2: Guidance for the assessment of conformity.*

EN 1565-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Styrene-copolymer blends (SAN+PVC) — Part 1: Specifications for pipes, fittings and the system.*

ENV 1565-2, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Styrene copolymer blends (SAN+PVC) - Part 2: Guidance for the assessment of conformity.*

EN 1566-1, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Chlorinated poly(vinyl chloride) (PVC-C) — Part 1: Specifications for pipes, fittings and the system.*

ENV 1566-2, *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Chlorinated poly (vinyl chloride) (PVC-C) - Part 2: Guidance for the assessment of conformity.*

EN 12056-2, *Gravity drainage systems inside buildings — Part 2: Sanitary pipework, layout and calculation.*

EN 12056-5, *Gravity drainage systems inside buildings — Part 5: Installation and testing, instructions for operation, maintenance and use.*

EN 12763, *Fibre-cement pipes and fittings for discharge systems for buildings — Dimensions and technical terms of delivery.*

### 3 Terms, definitions and symbols

For the purposes of this European Standard, the following terms and definitions apply.



### 3.1 Terms and definitions

#### 3.1.1

##### air admittance valve

##### AAV

component fitted to an inside drainage system allowing air to enter the drainage pipework system, but not allowing foul air out

#### 3.1.2

##### determined airflow capacity

lowest flowrate of an air admittance valve while producing a pressure of  $(-250 \pm 10)$  Pa at the manometer tapping

NOTE Airflow capacity is expressed in litres per second

#### 3.1.3

##### opening pressure

value of the pressure at the instant of opening of the air admittance valve

### 3.2 Symbols

Symbol for air admittance valve used in this European Standard:



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NOTE The arrows designate the direction of airflow.

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### 4 Types of air admittance valves

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Air admittance valves are designated according to their operating temperature range and location with respect to connected appliances according to Table 1.

**Table 1 — Operating conditions and designation of air admittance valves**

Determining factor	Range/Position	Designation
Permitted to be located below flood level of connected appliances	Yes	A
	No	B
Temperature	- 20 °C to + 60 °C	I
	0 °C to + 60 °C	II
	0 °C to + 20 °C	III

EXAMPLE 1 A valve that is permitted to be located below an appliance's flood level and operate in air temperatures of 0 °C to +60 °C would be designated an 'A II' air admittance valve.

EXAMPLE 2 A valve that is not permitted to be fitted below an appliance's flood level and can only operate in air temperatures of 0 °C to +20 °C would be designated a 'B III' air admittance valve.

NOTE Designation I valves are intended for use where the ambient temperature at the point of installation is below freezing for days.

## 5 Requirements

### 5.1 General

All air admittance valves shall be airtight when closed and function reliably within the specified temperature ranges when installed according to the manufacturer's instructions.

### 5.2 Connections

The connections of all air admittance valves shall conform to the relevant standards for the products to which the connection is to be made. These standards include: EN 877, EN 1123, EN 1124, EN 1329, EN 1451-1, ENV 1451-2, EN 1453-1, ENV 1451-2, EN 1455-1, ENV 1455-2, EN 1519-1, ENV 1519-2, EN 1565-1, ENV 1565-2, EN 1566-1, ENV 1566-2, and EN 12763. The sealing material shall conform to EN 681-1 to EN 681-4.

### 5.3 Airtightness

An assembly of an air admittance valve fitted to a pipe, in accordance with the manufacturer's instructions, shall be airtight when tested according to the airtightness test (see 6.3).

### 5.4 Durability

Air admittance valves shall withstand normal handling. They are considered to fulfil this requirement if they pass the drop test (see 6.2).

Air admittance valves shall have a satisfactory service life. An air admittance valve will be considered to have sufficient service life when it passes the endurance and temperature test (see 6.4).

### 5.5 Effectiveness

When determined in accordance with the [SIST EN 12380:2003](https://standards.iteh.ai/catalog/standards/sist/b79542cc-9921-4b7f-aa78-781d3e757547/sist-en-12380-2003) [airflow capacity test](https://standards.iteh.ai/catalog/standards/sist/b79542cc-9921-4b7f-aa78-781d3e757547/sist-en-12380-2003) (see 6.5), the airflow capacity shall be not less than the nominal capacity claimed by the manufacturer.

When tested according to 6.5, air admittance valves shall be open when a constant pressure of  $-150_{-10}^0$  Pa is applied to the inside of the valve.

Designation I valves shall be tested in accordance with 6.6.

## 6 Test methods

Air admittance valves shall be installed for testing, where appropriate, in accordance with the manufacturer's instructions and subjected to, and pass, the following tests in order of listing:

- 1) drop;
- 2) air tightness at 30 Pa, 500 Pa and 10 000 Pa;
- 3) endurance and temperature test;
- 4) opening characteristic and airflow capacity test;
- 5) where required, a test for effectiveness at temperatures below zero.

NOTE Test methods and criteria vary for different designation valves.

## 6.1 General procedure

If the air admittance valve to be tested is to be supplied with any adaptors that in some circumstances the manufacturer recommends should be fitted, e.g. a size reducer, the air admittance valve shall be tested both with and without each of the adaptors or combination of adaptors in tests 6.3 and 6.4. The valves shall be mounted within 5° of vertical and fitted complete with any insulation or fly screen etc. supplied with the valve.

Testing, unless otherwise specified in the individual test methods, shall be carried out at a temperature of  $20_{-5}^{+10}$  °C.

The results of the testing shall be reported as shown in annex A.

### 6.1.1 Sampling for tests

Three samples of each type, and variations of each type, shall be chosen at random and each valve subjected to the drop test, air tightness test, and opening characteristic and air flow capacity test. Valve variations will include: adapter devices for different size pipes, insulation covers, fly-screens or any other removable or optional feature that could affect an aspect of the valve's performance.

### 6.1.2 Test methods

The apparatus drawings in this European Standard are suggested diagrammatic means of testing the valves. Other apparatus may be used providing the results are comparable and no less accurate. In cases of dispute the methods and apparatus specified in this European Standard shall be used.

## 6.2 Drop test

### 6.2.1 Method

Valves with removable insulation shall be tested without the insulation in position. The test shall be carried out as follows over a concrete surface as shown in Figure 1:

- a) ensure that the surface is clean;
- b) hold the air admittance valve with its lowest point  $1_{-0}^{+0,02}$  m above the concrete surface, in orientation 1 (upside down);
- c) release the air admittance valve;
- d) pick up valve, change to orientation 2 (top uppermost) and drop;
- e) pick up valve, change to orientation 3 (sideways) and drop.

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