

Antipollution of water installations

Technical document 045-10

Air break to drain

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Modification history

Revision No.	Date	Modifications
15	01/07/2017	Update to the document introduction and reference. Basic modifications: <ul style="list-style-type: none">- Part 2: Production quality requirements- § 2.1.2: extra details regarding the quality procedures and testing apparatus added- Table 2: Note concerning ISO 9001 sites removed- Part 3: Inspection procedures employed by the CSTB “Types of product” paragraph removed§ 3.2.2 and § 3.2.3: paragraphs modified
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1 TECHNICAL SPECIFICATIONS

This document gives the technical characteristics of the air breaks installed on appliances connected to the potable water system.

This document does not define the technical characteristics of the equipment.

1.1 Introduction

The purpose of this document is to define:

- the field of application,
- the technical requirements for the air breaks installed on appliances connected to the potable water system,
- the test methods and requirements for verifying their characteristics,
- the marking and presentation.

1.2 Field of application

This document applies to all air breaks not covered by a product standard and designed to equip any type of appliance with external drainage that has to be connected to a domestic waste water system.

The air break can be fitted with a trap.

1.3 Standard and technical references

Identification No. of the standards	Designation
NF EN 1717:2001	<i>Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow</i>
NF EN 274-1:2002	<i>Waste fittings for sanitary appliances – Part 1: Requirements</i>
NF EN 274-2:2002	<i>Waste fittings for sanitary appliances – Part 2: Test methods</i>

1.4 Definitions

For the purposes of this document, the terms and definitions given in Standard NF EN 1717, as well as the following definition apply.

Air break to drain

The unobstructed distance between the low point of overflow, discharge or drain of a device or installation, leading from a water apparatus, and the top point of the device that collects this water.

1.5 Designation

Air breaks to drain are designated by:

- the name of the device,
- their family, Y,
- their type, A,
- their drain connection diameter,
- the reference to Standard NF EN 1717 and to this document (045-10).

Example:

Air break to drain, YA, DN/OD40, NF EN 1717 & Technical document 045-10

1.6 Symbol

The graphic symbol for an air break is the following:

Y

1.7 Marking

The device shall be marked in a permanent manner, visible on the body.

The information shall be indelible and formed by casting, engraving or similar method.

It shall indicate the following as a minimum requirement:

Marking	To be placed on the product
The holder's name or logo	X
The family & type	X
The reference to Standard NF EN 1717	X
The NF logo	X

1.8 Technical documentation and packaging

A technical document defining the limits of use or end use shall be provided.

Technical documentation with the installation and assembly conditions shall be supplied to the user of the device.

It shall indicate the following:

Information	To be placed on	
	Documentation	Packaging
The holder's name or logo	X	X
The family & type	X	X
The fitting dimensions	X	X
The maximum working temperature (°C)	X	X
The maximum drainage flow (l/min)	X	X
The product reference	X	X
The reference to Standard NF EN 1717 and Technical document 045-10	X	X(*)
The NF logo	X	X
The assembly instructions	X	X(*)
The maintenance instructions	X	X(*)

(*) This information is optional

1.9 Materials

1.9.1 Quality of the materials

The materials shall comply with the regulations in force.

It is the responsibility of the air breaks' applicant/holder to use materials suitable for the intended use.

Air breaks shall be manufactured using materials that withstand intermittent contact with domestic sewage at temperatures from $(20 \pm 5) ^\circ\text{C}$ to a maximum of $95 ^\circ\text{C}$ when they are subjected to a test in accordance with Article 1.12.5 of this document.

1.10 General design characteristics

1.10.1 Design principle of the air break

The air breaks to drain shall be created by total disconnection or by air inlets.

1.10.2 Traps

The air break can be fitted with a trap.

In such cases, the trap shall meet the design requirements of Standard NF EN 274-1 *and shall be derived from a product holding the NF mark.*

1.10.3 Other

All other designs shall comply with the specifications declared by the applicant/holder or with the applicable standards.

Dimensions taken from Standard EN 1717:

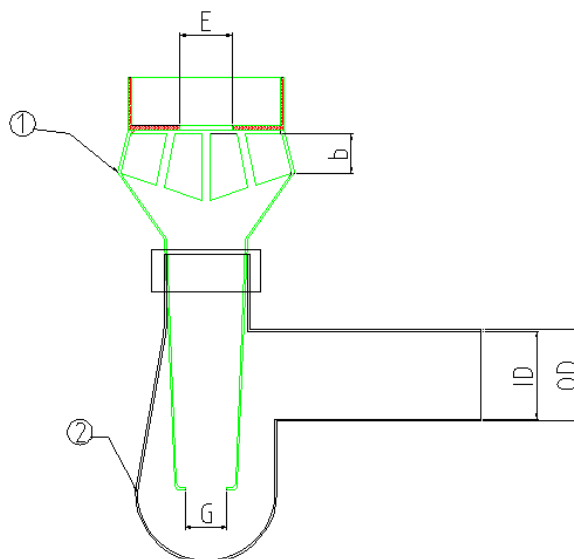
$b \geq G$

$b \geq 20 \text{ mm}$

$G \geq E$

E: passage diameter at drain outlet upstream of the air gap

G: narrowest passage diameter



○ = equipment connected to the system (not represented)

① = air break

② = connection to the drainage system (direct or via a trap)

1.11 Dimensional characteristics

1.11.1 Connection to the drain pipe

The dimensions concerned by this article are those that enable connection to drainage system pipework. They shall comply with the requirements of Article 4.5 of Standard NF EN 274-1.

1.11.2 Other connection dimensions

The connections shall comply with the specifications declared by the applicant/holder or with the applicable standards.

1.11.3 Verification of the dimensional requirements of the siphoning function

The dimensional characteristics of the siphoning function shall be verified in accordance with the requirements of Article 4.4.2 of Standard NF EN 274-1 (dimension H).

1.11.4 Verification of the dimensional requirements of the air break

The dimensional characteristics of the air break to drain shall be verified in accordance with the requirements of Article 9 of Standard NF EN 1717 and of Article 1.11.1 of this document.

1.12 Characteristics and verification

1.12.1 General

The operation tests shall be carried out on the device installed in accordance with the applicant/holder's technical documentation.

1.12.2 Verification

Verify that the device conforms to the applicant/holder's description and drawings.

1.12.3 Hydraulic characteristics

This article describes a test method to determine the effectiveness of the air break in absorbing all the drainage flow indicated by the applicant/holder.

Water at ambient temperature shall be used for the test.

Operating procedure:

- establish the drainage flow as specified by the applicant/holder
- maintain the drainage flow for 15 minutes
- shut off the flow of water.

Specification:

The air break shall discharge all the flow without splashes or leaks to the outside.

1.12.4 Leaktightness characteristics of the siphoning part

The test is carried out on the siphoning function of the air break in accordance with Article 6.2 of Standard NF EN 274-2.

Specification:

Throughout the test, no leak to the outside shall be detected.

1.12.5 Temperature variation test

The air break (and trap if applicable) shall be subjected to five hot and cold water cycles in accordance with the following programme:

- a) 0.5 l/s of water at a temperature of (95 0/-5) °C for 15 mins at a constant flow rate; and
- b) 0.5 l/s of water at a temperature of (20 ± 5) °C for 10 mins at a constant flow rate.

The water shall enter the air break at the required temperature.

A drainage period ≤ 5 s is permitted between the cycles.

Specification:

After this test;

- For simple air breaks, visually check that the air break is in good condition,
- For air breaks fitted with a trap, perform the leaktightness test described in Article 1.12.4.