SLOVENSKI STANDARD
SIST EN 1488:2021

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Nadomešča:
SIST EN 1488:2000

Ventili v stavbah - Ekspanzijski bloki - Preskusi in zahteve

Building valves - Expansion groups - Tests and requirements

Gebäudearmaturen - Sicherheitsgruppen für Expansionswasser - Prüfungen und Anforderungen

Robinetterie de bâtiment - Groupes d'expansion - Essais et exigences

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ICS:

23.060.01	Ventili na splošno	Valves in general
91.140.60	Sistemi za oskrbo z vodo	Water supply systems

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English Version

Building valves - Expansion groups - Tests and requirements

Robinetterie de bâtiment - Groupes d'expansion - Essais et exigences

Gebäudearmaturen - Sicherheitsgruppen für Expansionswasser - Prüfungen und Anforderungen

This European Standard was approved by CEN on 19 March 2021.

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

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European foreword

This document (EN 1488:2021) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

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

This document supersedes EN 1488:2000.

In comparison with the previous edition, the following technical modifications have been made:

— chapter on materials was completely revised;

— testing with disinfectant was introduced;

— torque test was added;

— testing for safety valve was changed and optimized;

— coating test procedure was revised;

— normative references were updated;

— editorial changes have been made throughout the entire document.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

With regards to potential adverse effect on the quality of water intended for human consumption, caused by the product covered by this document:

1) This document provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA.

2) It should be noted that, whilst awaiting the adoption of verifiable European criteria, existing national regulations concerning the use or the characteristics of this product remain in force.

1 Scope

This document specifies, dimensions, materials and performance requirements (including methods of test) for expansion groups, of nominal sizes from DN 15 to DN 25, having working pressures[1] from 0,1 MPa (1 bar) to 1,0 MPa (10 bar).

Expansion groups are fitted to the cold potable water supply only for expansion purposes, e.g. of storage water heaters, having a maximum distribution temperature of 95 °C.

Expansion groups limit pressure in the water heater to which they are fitted, that is produced by thermal expansion of the water, prevent the backflow of water into the supply pipe and prevent the discharged water to get into contact with the water in the water heater.

Expansion groups do not control temperature and alone do not constitute the protection required for storage water heaters.

NOTE The use of the device specified in this document does not override the need to use controls (e.g. thermostats and thermal cut-outs) which act directly on the power sources of water heaters (for more information see Annex A).

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 806 (all parts), *Specifications for installations inside buildings conveying water for human consumption*

EN 1254-2, *Copper and copper alloys — Plumbing fittings — Part 2: Fittings with compression ends for use with copper tubes*

EN 1567, *Building valves — Water pressure reducing valves and combination water pressure reducing valves — Requirements and tests*

EN 1717:2000, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN 13959, *Anti-pollution check valves — DN 6 to DN 250 inclusive family E, type A, B, C and D*

EN ISO 3822-1, *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 1: Method of measurement (ISO 3822-1)*

EN ISO 3822-3, *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 3: Mounting and operating conditions for in-line valves and appliances (ISO 3822-3)*

EN ISO 6509 (all parts), *Corrosion of metals and alloys — Determination of dezincification resistance of copper alloys with zinc (ISO 6509)*

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

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1 All pressures are gauge unless otherwise stated.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
expansion group
group that limits the pressure increase due to the volume expansion when water is heated, prevents the backflow of the water into the main circuit and the contamination of water contained in the water heater with discharged water, allows to control the function of the backflow prevention and isolates the water heater for maintenance services

Note 1 to entry: An expansion group comprises of the following components in a single unit, in an upstream to downstream order as shown in Table 1.

Table 1 — Components of the expansion group

Component	Quantity
an isolating valve	1
a test port for monitoring the check valve	1
a check valve	1
an isolating valve	1 [a]
an additional outlet connection	1 [a]
an expansion valve	1
an air break to drain	1
a pressure measuring port	1 [a]
[a] optional	

3.2
isolating valve
valve that isolates the water heater from the potable water supply

3.3
check valve
valve that allows water to flow into a water heater, and automatically prevents water returning to the water supply

3.4
additional outlet connection
connection to supply cold potable water to be supplied to an additional device, e.g. inline hot water supply tempering valves, etc.

3.5
expansion valve
valve that limits the pressure of the water in the water heater to a predetermined value by discharging water to drain

3.6
air break to drain
device that prevents discharged water from returning to the expansion group and thus to the water heater

3.7
pressure measuring port
measuring port that allows pressure measuring equipment to be connected

3.8
nominal set pressure
P_{nr}
pressure of the expansion valve which is set on production

Note 1 to entry: The "nominal set pressure" (P_{nr}) is often called "set pressure".

3.9
water tightness pressure
P_e
pressure up to which the expansion valve is closed

Note 1 to entry: See Figure 1.

3.10
initial opening pressure
P_{dc}
pressure at which the expansion valve opens for the first time, as indicated by the first droplet of water at the outlet of the expansion group, after a period of storage

Note 1 to entry: See Figure 1.

3.11
opening pressure
P_o
pressure at which the expansion valve open as indicated by the appearance of water at the outlet of the expansion group

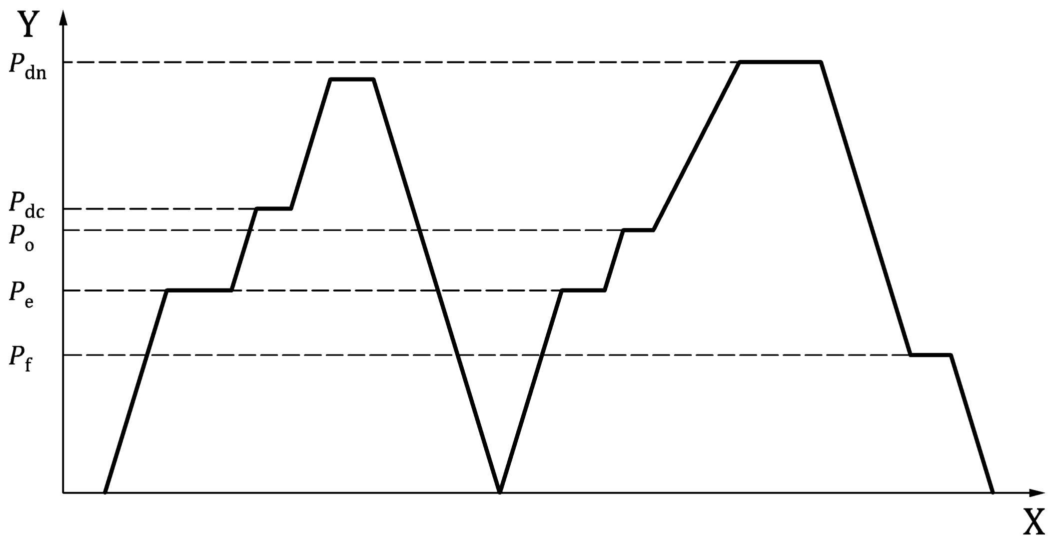
Note 1 to entry: See Figure 1.

3.12
rating pressure
P_{dn}
pressure at which the discharged flow is above the limit

Note 1 to entry: See Figure 1 and Table 8.

3.13
closing pressure
P_f
pressure at which the expansion valve closes after having reached the rating pressure

Note 1 to entry: See Figure 1.



Key

Y pressure

X time

Figure 1 — Pressures

4 Materials and surface finishes

4.1 General

The selection of materials is the responsibility of the manufacturer, provided they satisfy the following requirements:

a) materials and coatings shall not contaminate the potable water;

b) in a technical document, the manufacturer shall state the nature of the materials and coatings used;

c) materials with insufficient corrosion resistance (e.g. cast iron, aluminium) shall have additional protection;

d) the materials used shall be suitable for the temperatures specified in the tests in this document;

e) the materials, and in particular copper alloys, for which recommendations or international standards exist, shall comply with the relevant recommendations or international standards.

4.2 Materials

All materials coming into contact with water intended for human consumption shall present no health risk nor cause any change to the water in terms of quality, appearance, smell or taste.

NOTE While awaiting the adoption of verifiable European criteria for testing materials in contact with water intended for human consumption, existing national regulations concerning the use and/or the characteristics of these products remain in force.

Copper-zinc alloys containing more than 10 % zinc are subject to dezincification when submitted to water capable of dezincification. In the countries where the use of products made of dezincification resistant materials is required, the materials used shall guarantee a dezincification depth less than 200 µm in any direction. For this purpose materials shall be tested in accordance with the standard EN ISO 6509 (all parts) and the product shall be marked in compliance with the indications according to Clause 13.

4.3 Detection of residual stress

4.3.1 General

This test shall be performed for bodies made out of brass materials and with female threads according to EN 10226-1 and compression ends according to EN 1254-2.

4.3.2 Test

This test is based on ISO 6957. Its purpose is to verify the resistance to cracking under stress corrosion in ammonia medium (as described in 4.3.3 b).

The test entails exposing test specimens consisting of the assembled expansion group in an atmosphere loaded with ammonia vapour.

4.3.3 Test method (Procedure)

The paragraph below details ISO 6957.

Test solution:

a) Use solutions of analysis quality and of distilled water.

b) Solution of ammonia at 20 % (in weight).

c) The pH of the test solution is to be adjusted to 9.5 by using hydrochloric acid.

d) The test temperature is to be (23 ± 2) °C with a measurement uncertainty of ± 1 °C.

Test specimen:

e) The test specimen consists of three samples of a single assembled product. The test specimen is inserted into the test enclosure under no stress.