SLOVENSKI STANDARD
oSIST prEN 1488:2020

01-junij-2020

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

Ta slovenski standard je istoveten z: **prEN 1488**

ICS:

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

oSIST prEN 1488:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 1488

April 2020

ICS 91.140.60

Will supersede EN 1488:2000

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 draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 1488:2020) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede 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 optimised;

— coating test procedure was revised;

— normative references were updated;

— editorial changes have been made throughout the entire document.

Introduction

The product standards on check valves are currently being worked out within CEN/TC 164/WG 4. The requirements for the endurance tests that will be laid down for these products may cause the revision of the present document for reasons of homogeneity.

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 shall be 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.

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, *Corrosion of metals and alloys — Determination of dezincification resistance of brass (ISO 6509)*

1) All pressures are gauge unless otherwise stated.

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)*

ISO 6957, *Copper alloys — Ammonia test for stress corrosion resistance*

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

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
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 at least 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
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
sllows to isolate the water heater from the potable water supply. If a second isolating valve is fitted, it shall be between the check valve and the expansion valve

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

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

3.5
expansion valve
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
prevents discharged water from returning to the expansion group and thus to the water heater

3.7
pressure measuring port
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 valves open as indicated by the appearance of water at the outlet of the expansion group

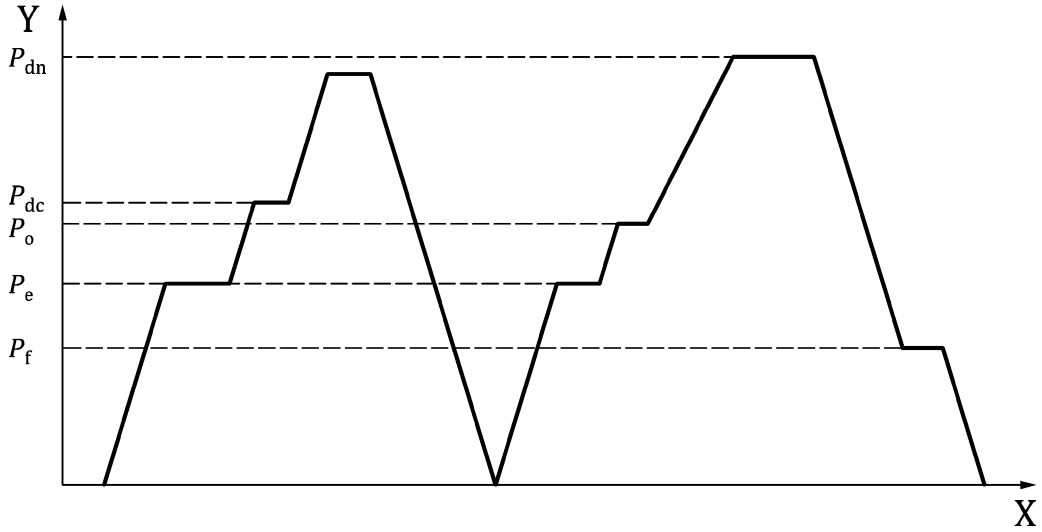
Note 1 to entry: See Figure 1.

3.12
rating pressure (P_{dn})
pressure at which the discharged flow is above the limit given in Table 9

Note 1 to entry: See Figure 1 and Table 9.

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 (see Clause 3)

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 in accordance with national regulations of the European Community and/or European standards may be used.

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 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.

Instructions:

f) Rinse the test specimens with a clean non-chlorinated solvent (for example, ethanol).

g) Let it dry in the air.

h) Insert the test specimens into the test enclosure along with the ammonia solution. The volume of the container made of glass (e.g. desiccator) is to be minimum (10 ± 1) l.

i) The volume of the solution inserted is to be (200 ± 10) ml per 3 l of total volume of the container (e.g. for a 10 l container it means (667 ± 33) ml.

j) Place the test specimens in the container in such a way that they will not touch each other and that they will not be in contact with the solution.