BRITISH STANDARD

BS EN 1491:2000

Building valves — Expansion valves — Tests and requirements

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ICS 91.140.60

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National foreword

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The UK participation in its preparation was entrusted by Technical Committee B/504, Water supply, to Subcommittee B/504/7, Control and safety devices in drinking water systems, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 18, an inside back cover and a back cover.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1491

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English version

Building valves - Expansion valves - Tests and requirements

Robinetterie de bâtiment - Soupapes d'expansion - Essais et prescriptions

Gebäudearmaturen - Sicherheitsventile für Expansionswasser - Prüfungen und Anforderungen

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CONTENTS

		Page
Foreword		3
Introduction		3
1	Scope	4
2	Normative references	4
3	Definitions	4
4	Materials and surface finishes	5
5	Design and dimensional requirements	6
6	Hydraulic tests and requirements	7
7	Mechanical tests and requirements	12
8	Acoustic tests and requirements	14
9	Classification	14
10	Designation	15
11	Marking	15
Annex A (Informative): Safety equipment for water heaters		16

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Full document details: BS EN 1491:2000

FOREWORD

This European Standard 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of an identical text or by endorsement, at the latest by September 2000, and conflicting national standards shall be withdrawn at the latest by September 2000.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Annex A of this European Standard is informative.

INTRODUCTION

In respect of potential adverse effect on the quality of water intended for human consumption caused by the product covered by this standard:

a) this standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;

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

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1 SCOPE

This European Standard specifies, dimensions, materials and performance requirements (including methods of test) for expansion valves, of nominal sizes from DN 15 to DN 40, having working pressures[1)] from 0,1 MPa (l bar) to 1,0 MPa (10 bar).

Expansion valves are intended for fitting to the cold water supply of storage water heaters, having a maximum distribution temperature of 95 °C, for all energy sources.

Expansion valves do not control the temperature and alone does not constitute the protection required for storage water heaters. Expansion valves limit pressure, in the water heaters to what they are fitted, that is produced by thermal expansion of the water.

NOTE: The use of the device specified in this standard does not override the need to use controls (e.g. thermostats and cut-outs) which act directly on the power sources of water heaters.

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 addition of the publication referred to applies.

EN 1254-2	Copper and copper alloys - Plumbing fittings - Part 2: Fittings with compression ends for use with copper tubes.
EN 1982	Copper and copper alloys - Ingots and castings.
EN 12420	Copper and copper alloys – Forgings.
EN ISO 6509	Corrosion of metals and alloys - Determination of dezincification resistance of brass (ISO 6509:1981).
ISO 7-1:1994	Pipe threads where pressure-tight joints are made on the threads - Part 1: Dimensions, tolerances and designation.
ISO 228-1:1994	Pipe threads where pressure-tight joints are not made on the thread - Part 1: Dimensions, tolerances and designation.
ISO 7005-3:1988	Metallic flanges - Part 3: Copper alloy and composite flanges.

3 DEFINITIONS

For the purposes of this standard, the following definitions apply.

3.1 expansion valve opens automatically at a specified set pressure to discharge fluid. It is fitted to prevent the pressure of the water in the water heater from exceeding the maximum working pressure by discharging a quantity of water to the drain

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[1)] All pressures are gauge unless otherwise stated.

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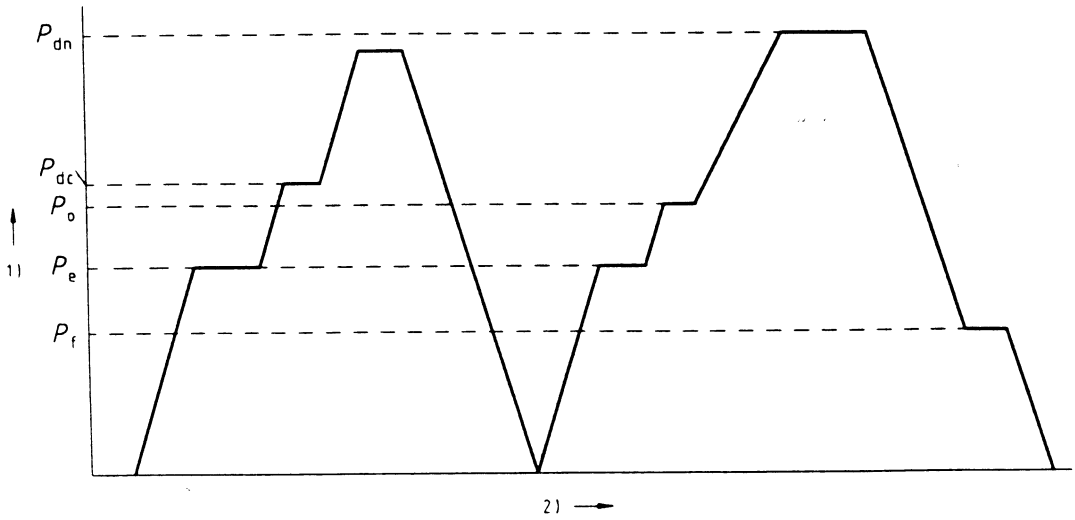
3.1 Pressures

3.2.1 nominal set pressure (P_{nr}) pressure of the expansion valve which is set on production



Key

1) Pressure
2) Time

Figure 1 - Pressures - see Definitions

3.2.2 water tightness pressure (P_e) pressure up to which the expansion valve is still closed (see Figure 1)

3.2.3 initial opening pressure (P_{dc}) pressure at which the expansion valve opens for the first time, as indicated by the first droplet of water, after a period of storage (see Figure 1)

3.2.4 opening pressure (P_o) pressure at which a flow rate of 2,4 litre/hour of water is attained (see Figure 1) through the expansion valve

3.2.5 rating pressure (P_{dn}) pressure at which the water discharge capacity of the expansion valve corresponds to the rated flow (see Figure 1 and Table 3)

3.2.6 closing pressure (P_f) pressure at which the expansion valve closes after having reached the rating pressure (see Figure 1)

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 drinking water, when in normal or accidental contact;

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