

Devices to prevent pollution by backflow of potable water — Mechanical disconnect, hydraulic actuated — Family G, type B

The European Standard EN 13434:2006 has the status of a
British Standard

ICS 13.060.20; 23.060.50

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 13434:2006.

The UK participation in its preparation was entrusted by Technical Committee B/504, Water supply, to Subcommittee B/504/4, Backflow prevention.

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

BSI, as a member of CEN, is obliged to publish EN 13434 as a British Standard. However, attention is drawn to the fact that during the development of this European Standard, the UK voted against its approval as a European Standard.

The UK committee believes that there are errors in the test procedure described in clause 9.5.3.2, Test 3. The required flow rate at stage 1 is adjusted by means of valve 6 which, in the opinion of the UK, should remain open throughout the procedure (along with Valve 4) to maintain the flow rate. The UK committee believe this to be an error which will affect the remaining steps of the test sequence. When applying this standard, users are advised to treat test results from this procedure with caution.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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English Version

Devices to prevent pollution by backflow of potable water -
Mechanical disconnecter, hydraulic actuated - Family G, type B

Dispositifs de protection contre la pollution par retour de
l'eau potable - Disconnecteur mécanique assisté
hydrauliquement - Famille G, type B

Sicherungseinrichtungen zum Schutz des Trinkwassers
gegen Verschmutzung durch Rückfließen - Rohrtrenner,
durchflussgesteuert - Familie G, Typ B

This European Standard was approved by CEN on 16 December 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This European Standard (EN 13434:2006) 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 2006, and conflicting national standards shall be withdrawn at the latest by September 2006.

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

Introduction

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this European Standard:

- 1) this European Standard provides no information as to whether the product may be used without restriction in any of the Member state of the EU or EFTA;
- 2) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

1 Scope

This European Standard specifies, the dimensional, the physico-chemical, the design, the hydraulic, the mechanical and the acoustic characteristics of mechanical disconnecter, hydraulic actuated Family G, type B.

This European Standard is applicable to mechanical disconnectors hydraulic actuated in nominal sizes DN 8 up to DN 250, intended to prevent the return of water having lost its original sanitary and drinking qualities (called "polluted water" in this European Standard), into the potable water distribution system whenever the pressure of the latter is temporarily lower than in the polluted circuit.

This European Standard covers the mechanical disconnectors hydraulic actuated of PN 10 that are capable of working without modification or adjustment:

- at any pressure up to 1 MPa (10 bar);
- with any pressure variation up to 1 MPa (10 bar);
- in permanent duty at a limit temperature of 65 °C and 90 °C for 1 h maximum.

It specifies also the test methods and requirements for verifying these characteristics, the marking and the presentation at delivery.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 806-1:2000, *Specifications for installations inside buildings conveying water for human consumption — Part 1: General*

EN 1092-1, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1092-2, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges*

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

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

EN ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

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 3822-1:1999)*

EN ISO 3822-3:1997, *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 3822-3:1984)*

EN ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 1: General principles and requirements (ISO 5167-1:2003)*

EN ISO 6509, *Corrosion of metals and alloys — Determination of dezincification resistance of brass* (ISO 6509:1981)

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

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

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1717:2000, EN 806-1:2000 and the following apply.

3.1

mechanical disconnecter, hydraulic actuated — Family G, type B

specific characteristics of this device called “GB”, (see Figure 1) are as follows:

- two pressure zones in flow position: upstream and downstream;
- three pressure zones in drain position (zero-flow): upstream, intermediate and downstream. The upstream spring loaded obturator with discharge system and the downstream check valve separate the intermediate zone from the upstream and downstream zone;
- at zero flow the disconnecter is in drain position;
- the relief valve start opening at a pressure difference between upstream and downstream zone $\Delta p \geq 14 \text{ kPa}$ (0,14 bar);
- flow position is achieved at a pressure difference $\Delta p < 100 \text{ kPa}$ (1 bar);
- a determined relief flow rate;
- a drain position visible directly or by a position indicator

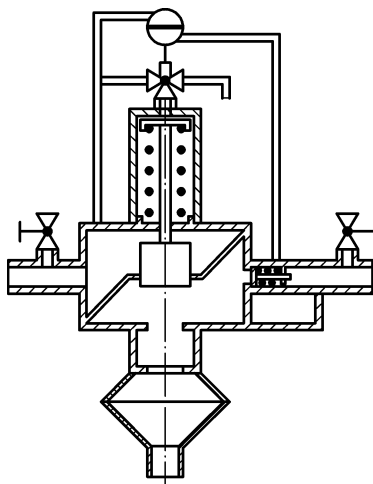


Figure 1 — Design principle

3.2**inlet pressure, p_1**

pressure on the inlet side of the device

3.3**intermediate pressure, p_i** pressure in the intermediate chamber of the device (in drain position $p_i = p_{\text{atmosph.}}$ under flow condition $p_i = p_1$)**3.4****outlet pressure, p_2**

pressure on the outlet side of the device

3.5**differential pressure Δp** differential pressure between the inlet pressure p_1 and the outlet pressure p_2 **3.5.1****differential pressure, Δp_f (f = flow position)**differential pressure between the inlet pressure p_1 and the outlet pressure p_2 in flow position**3.5.2****differential pressure, Δp_d (d = drain position)**differential pressure between the inlet pressure p_1 and the outlet pressure p_2 in drain position**3.6****set pressure p_s**

pressure at which the relief valve starts to open

3.7**disconnection distance**

minimal distance between the seat of the relief valve and the seat of the upstream obturator where the disconnection is operated

NOTE For the purposes of this European Standard «Mechanical disconnecter, hydraulic actuated – Family G, type B» is hereafter referred to as «device».

4 Nominal size

The nominal size of the device is given in Table 1:

Table 1 — DN versus threads and flanges

Nominal size DN	8	10	15	20	25	32	40	50	65	80	100	125	150	200	250
Threads (designation in accordance with ISO 7-1)	G 1/4	G 3/8	G 1/2	G 3/4	G 1	G 1 1/4	G 1 1/2	G 2							
Flanges (DN)							40	50	65	80	100	125	150	200	250

5 Designation

A mechanical disconnecter hydraulic actuated Family G, Type B is designated by:

- name;
- reference to this European Standard, i.e. EN 13434.
- family and type;
- nominal size (see Table 1);
- connection type;
- material of its body;
- surface finish (possible coatings);
- acoustic group (if applicable).

EXAMPLE of designation Mechanical disconnecter EN 13434, Family G, Type B, DN 32, G 1¼ × G 1¼, cast iron, epoxy coated, I.

6 Symbolization

The graphic representation of the mechanical disconnecter hydraulic actuated Family G, Type B is as follows (see Figure 2):

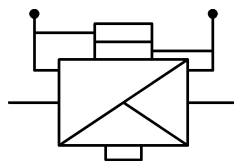


Figure 2 — Graphic symbol

7 Physico-chemical characteristics

7.1 Materials

The materials and the coatings used, liable to come normally or accidentally in contact with potable water, shall satisfy the EU regulations concerning water quality.

The materials and the coatings shall be:

- a) corrosion resistant;
- b) prone to the least scaling possible;
- c) in conformity with the European Standards and regulations;
- d) compatible among themselves and: