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## Valves for water supply – Fitness for purpose requirements and appropriate verification tests – Part 5: Control valves

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Swedish Standards corresponding to documents referred to in this Standard are listed in "Catalogue of Swedish Standards", issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

## Rörledningsarmatur – Ventiler för vattenförsörjning – Funktionskrav och provning – Del 5: Styrventiler

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**EN 1074-5**

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English version

## Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 5: Control valves

Robinetterie pour l'alimentation en eau - Prescriptions  
d'aptitude à l'emploi et vérifications s'y rapportant - Partie 5:  
Robinets de régulation

Armaturen für die Wasserversorgung - Anforderungen an  
die Gebrauchstauglichkeit und deren Prüfung - Teil 5:  
Regelarmaturen

This European Standard was approved by CEN on 28 December 2000.

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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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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## Foreword

This European Standard has been prepared by Technical Committee CEN /TC 69 "Industrial valves", the secretariat of which is held by AFNOR.

EN 1074 consists of six parts :

- *Part 1 : General requirements ;*
- *Part 2 : Isolating valves ;*
- *Part 3 : Check valves ;*
- *Part 4 : Air valves ;*
- *Part 5 : Control valves ;*
- *Part 6 : Hydrants.*

Part 1, in conjunction with the subsequent parts, lays down the general requirements and test procedures to be carried out in production and during the assessment of conformity of these valves (type tests). The detailed requirements, which depend on the types of valves, are defined in parts 2 to 6 of this standard.

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 July 2001, and conflicting national standards shall be withdrawn at the latest by July 2001.

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.

## Introduction

In respect of potential adverse effects 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, 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 defines the minimum fitness for purpose requirements for automatic control valves providing a regulation function to be used in, or connected to, water supply pipe systems, above or below ground (see EN 805), carrying water intended for human consumption.

This standard specifies the design requirements, the performance requirements and the conformity assessment method for control valves, whatever their type and materials.

This standard applies in priority to any other product or test standard : the requirements from other standards apply only when this standard refers to them.

This part of EN 1074 deals with the requirements applicable to control valves up to DN 2000 and PFA 6 bar to PFA 25 bar.

This part of EN 1074 does not deal with the specific performances of the controlling system accessories, whether they be integrated or not, nor with the other components of such control systems e.g. pressure sensors, flow meters, level detectors, regulating devices, powered actuators, etc.

Control valves manufactured in accordance with this standard are not intended for buried service.

## 2 Normative references

This European Standard incorporates, by dated or undated references, 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 edition of the publication referred to applies (including amendments).

EN 805, *Water supply - Requirements for systems and components outside buildings.*

EN 1074-1:2000, *Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 1 : General requirements.*

EN 1074-2:2000, *Valves for water supply - Fitness for purpose requirements and appropriate verification tests - Part 2 : Isolating valves.*

EN 1267, *Valves - Test of flow resistance using water as test fluid.*

## 3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EN 1074-1:2000 apply, together with the following terms and definitions.

### 3.1

#### **control valve**

a device intended to regulate, within specified limits, one of the following functions :

- flow rate ;
- level ;
- pressure (upstream or downstream).
- Control valves are divided into two types :

### 3.1.1

#### **autonomous control valve**

these valves have integral capability to control the function using energy from the conveyed water by adjusting the position of the obturator.

They can be directly operated i.e. the force is applied (via a spring or diaphragm) directly to the obturator.

They can be pilot operated i.e. the force is applied through an adjustable pilot valve.

### 3.1.2

#### **non-autonomous control valve**

these valves require an externally powered control system in order to regulate the specified function

## 4 Design requirements

Control valves shall be designed in accordance with the design requirements given in clause 4 of EN 1074-1:2000.

Control valves with pressure control or level control function shall be seat tight when closed.

The manufacturer shall indicate in the relevant technical documentation the working limits of the valve and any special conditions for installation and commissioning.

## 5 Performance requirements

### 5.1 Mechanical strength

#### 5.1.1 Resistance to internal pressure of the shell and of all pressure containing components

Requirement and test shall be in accordance with 5.1.1 of EN 1074-1:2000. If the manufacturer indicates that any feature of the control valve is not designed to withstand a high pressure, he shall indicate in his technical documentation the appropriate means to be used (e.g. isolating valves of the control system), in order to protect them during the test.

The features protected by these means shall be tested to the pressure given in 5.1.2 of EN 1074-1:2000.

#### 5.1.2 Resistance to differential pressure

The valve shall comply with the requirement and test of 5.1.2 of EN 1074-1:2000.

If a control valve is designed without seat tightness, the requirement and test for the obturator shall be modified as follows :

- the differential pressure which the obturator shall withstand, shall be the lower of  $(1,5 \times \Delta PM)$  bar and  $(\Delta PM + 5)$  bar ; where  $\Delta PM$  is the maximum differential pressure of the control valve in operation (value to be given by the manufacturer).

After the test, the valve shall comply with the control performances of this standard (see 5.3).

#### 5.1.3 Resistance of valves to bending

Bending resistance is an optional requirement for control valves ; if bending resistance is claimed by the manufacturer, the requirement and test shall be in accordance with 5.1.3 of EN 1074-1:2000, for sizes DN 50 to DN 500.

The bending moments  $M$  to be applied during the test shall be as given in Table 1 as a function of DN.