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Regulacijski ventili za industrijske procese

Industrial process control valves

Stellgeräte für die Prozessregelung

Robineets de régulation des processus industriels

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Tlačni regulatorji

Pressure regulators

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Industrial process control valves

Robinets de régulation des processus industriels

Stellgeräte für die Prozessregelung

This European Standard was approved by CEN on 10 October 2009.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 1349:2009) has been prepared by Technical Committee CEN/TC 69 "Industrial Valves", 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

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

This document supersedes EN 1349:2000.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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 the United Kingdom.

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EN 1349:2009 (E)

Introduction

This European Standard has been established on the basis of different parts of EN 60534.

The terminology specific to control valves is provided in EN 60534-1. The general valve terminology can be found in EN 736-1, EN 736-2 and EN 736-3.

This document differs from EN 60534-3 by addition of basic series of face-to-face dimensions and addition of other control valve types.

The testing requirements of EN 60534-4 are basically the same, but hydrostatic test makes reference to EN 12266-1 which is an harmonised European Standard.

The marking requirements refer to EN 19 and EN 60534-5.

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1 Scope

This European Standard applies to all industrial process control valves (hereafter referred to as control valves).

This European Standard specifies the design and performance requirements including material, pressure/temperature ratings, dimensions, testing and marking.

The range of nominal size is:

- DN 10; DN 15; DN 20; DN 25; DN 32; DN 40; DN 50; DN 65; DN 80; DN 100; DN 125; DN 150; DN 200; DN 250; DN 300; DN 350; DN 400; DN 450; DN 500; DN 600; DN 700; DN 750; DN 800; DN 900; DN 1 000; DN 1 200.

The range of PN is:

- PN 10; PN 16; PN 25; PN 40; PN 63; PN 100; PN 160; PN 250; PN 320; PN 400.

The range of Class is:

- Class 150; Class 300; Class 600; Class 900; Class 1 500; Class 2 500; Class 4 500.

Pinch valves are excluded from the scope of this European Standard.

Cast iron Class designated flanges are excluded from the scope of this European Standard.

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2 Normative references

SIST EN 1349:2011

The following referenced documents are indispensable for the application 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 19:2002, *Industrial valves — Marking of metallic valves*

EN 558:2008, *Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — PN and Class designated valves*

EN 736-1:1995, *Valves — Terminology — Part 1: Definition of types of valves*

EN 736-2:1997, *Valves — Terminology — Part 2: Definition of components of valves*

EN 736-3:2008, *Valves — Terminology — Part 3: Definition of terms*

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

EN 1092-2:1997, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges*

EN 1092-3:2003, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 3: Copper alloy flanges*

EN 1759-1, *Flanges and their joint — Circular flanges for pipes, valves, fittings and accessories, Class designated — Part 1: Steel flanges, NPS ½ to 24*

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EN 1759-3:2003, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, Class designated — Part 3: Copper alloy flanges*

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 12266-1:2003, *Industrial valves — Testing of valves — Part 1: Pressure tests, test procedures and acceptance criteria — Mandatory requirements*

EN 12516-1:2005, *Industrial valves — Shell design strength — Part 1: Tabulation method for steel valve shells*

EN 12516-2:2004, *Industrial valves — Shell design strength — Part 2: Calculation method for steel valve shells*

EN 12516-3:2002, *Valves — Shell design strength — Part 3: Experimental method*

EN 12516-4:2008, *Industrial valves — Shell design strength — Part 4: Calculation method for valve shells in metallic materials other than steel*

EN 12627, *Industrial valves — Butt welding ends for steel valves*

EN 12760, *Valves — Socket welding ends for steel valves*

EN 12982, *Industrial valves — End-to-end and centre-to-end dimensions for butt welding end valves*

EN 60534-1:2005, *Industrial-process control valves — Part 1: Control valve terminology and general considerations (IEC 60534-1:2005)*

EN 60534-2-1, *Industrial-process control valves — Part 2-1: Flow capacity — Sizing equations for fluid flow under installed conditions (IEC 60534-2-1:1998)*

EN 60534-2-3, *Industrial-process control valves — Part 2-3: Flow capacity — Test procedures (IEC 60534-2-3:1997)*

EN 60534-2-4, *Industrial-process control valves — Part 2-4: Flow capacity — Inherent flow characteristics and rangeability (IEC 60534-2-4:2009)*

EN 60534-2-5, *Industrial-process control valves — Part 2-5: Flow capacity; Sizing equations for fluid flow through multistage control valves with interstage recovery (IEC 60534-2-5:2003)*

EN 60534-4:2006, *Industrial-process control valves — Part 4: Inspection and routine testing (IEC 60534-4:2006)*

EN 60534-5:2004, *Industrial-process control valves — Part 5: Marking (IEC 60534-5:2004)*

EN 60534-9, *Industrial-process control valves — Part 9: Test procedure for response measurements from step inputs (IEC 60534-9:2007)*

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)*

ASME B1.20.1:1983, *Pipe Threads, General Purpose, Inch*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 736-1:1995, EN 736-2:1997, EN 736-3:2008 and EN 60534-1:2005 and the following apply.

NOTE The definitions are in agreement with the definitions given in EN 60534-1:2005, but the word "control" is added in the term to differentiate these definitions and the definitions given in EN 736-1:1995. It should be noted that the word "closure member" in EN 60534-1:2005 is replaced by the word "obturator" in this European Standard and in the different parts of EN 736. An alternative term which is commonly used is "plug".

3.1 Control valve

3.1.1

control valve

power operated device which changes the fluid flow rate in a process control system, consisting of a valve connected to an actuator that is capable of changing the position of an obturator in the valve in response to a signal from the controlling system

[Adapted from EN 60534-1:2005]

3.2 Control valve types

3.2.1 Control valves with a linear motion obturator

3.2.1.1

globe control valve

valve in which the obturator moves in a direction perpendicular to the plane of the seat

3.2.1.2

diaphragm control valve

valve in which a flexible obturator isolates the line fluid from the actuating mechanism and provides a seal to the atmosphere

3.2.1.3

gate control valve

valve whose obturator is a flat gate that moves in a direction parallel to the plane of the seat

3.2.2 Control valves with a rotary motion obturator

3.2.2.1

ball control valve

valve with an obturator that is a sphere with an internal passage, and with the centre of the spherical surface coincident with the axis of the shaft

3.2.2.2

segmented ball control valve

valve with an obturator that is a segment of a sphere, and with the centre of the spherical surface coincident with the axis of the shaft

3.2.2.3

plug control valve

valve with an obturator that is cylindrical or conical, having an internal passage

3.2.2.4

eccentric plug control valve

valve with an eccentric obturator that may be in the shape of a spherical or conical segment