



**SLOVENSKI STANDARD**  
**SIST EN ISO 16135:2006**  
**01-julij-2006**

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**Industrijski ventili - Krogelni ventili iz plastomernih materialov (ISO 16135:2006)**

Industrial valves - Ball valves of thermoplastics materials (ISO 16135:2006)

Industriearmaturen - Kugelhähne aus Thermoplasten (ISO 16135:2006)

Robinetterie industrielle - Robinets a tournant sphérique en matériaux thermoplastiques  
(ISO 16135:2006)

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**ICS:**

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ICS 23.060.20

English Version

Industrial valves - Ball valves of thermoplastics materials (ISO  
16135:2006)

Robinetterie industrielle - Robinets à tournant sphérique en  
matériaux thermoplastiques (ISO 16135:2006)

Industriearmaturen - Kugelhähne aus Thermoplasten (ISO  
16135:2006)

This European Standard was approved by CEN on 3 March 2006.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Foreword

This document (EN ISO 16135:2006) has been prepared by Technical Committee CEN/TC 69 "Industrial valves", the secretariat of which is held by AFNOR, in collaboration with Technical Committee ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids".

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.

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, 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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## ANNEX ZA

(informative)

### Relationship between this International Standard and the Essential Requirements of EU Directive 97/23 EC (PED)

This International Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide one means of conforming to Essential Requirements of the New Approach Directive 97/23/EC (PED).

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**Table ZA.1 — Correspondence between this Standard and Directive 97/23/EC (PED)**

Sub-clause(s) of this International Standard	Essential Requirements (ERs) of EU Directive 97/23/EC	
4.1; 4.3; 5.2	Design for adequate strength	2.2.1
5.2.3	Type test	2.2.2
4.8.1	Wear	2.7
4.7.1	Traceability	3.1.5
8.1	Marking	3.3
4.8.3	Operating instruction	3.4
4.2; 4.3	Materials for pressurized parts	4.1, 4.2 a)

**WARNING:** Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

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**Industrial valves — Ball valves  
of thermoplastics materials**

*Robinetterie industrielle — Robinets à tournant sphérique en matériaux  
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Published in Switzerland



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 16135 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 69, *Industrial valves*, in collaboration with ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 7, *Valves and auxiliary equipment of plastics materials*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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# Industrial valves — Ball valves of thermoplastics materials

## 1 Scope

This International Standard specifies requirements for the design, functional characteristics and manufacture of ball valves made of thermoplastics materials intended for isolating service, for control service, and to divert/mix fluids, their connection to the pipe system, the body materials and their pressure/temperature rating between  $-40\text{ }^{\circ}\text{C}$  and  $+120\text{ }^{\circ}\text{C}$ , for a lifetime of 25 years, and also specifies their tests.

This International Standard is applicable to hand- or power-operated valves to be installed in industrial pipe systems, irrespective of the field of application and the fluids to be conveyed.

NOTE 1 Industrial pipe systems also include systems for water supply for general purposes, drainage and sewerage.

NOTE 2 Special requirements can apply to pipe systems for water for human consumption.

This International Standard is concerned with the range of DN

DN 8, DN 10, DN 15, DN 20, DN 25, DN 32, DN 40, DN 50, DN 65, DN 80, DN 100, DN 125 and DN 150

and the range of PN and Class

PN 6, PN 10, PN 16, PN 25, Class 150 and Class 300.

## 2 Normative references

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.

ISO 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

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

ISO 898-1:1999, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs*

ISO 5211:2001, *Industrial valves — Part-turn actuator attachments*

ISO 8233:1998, *Thermoplastics valves — Torque — Test method*

ISO 8659:1989, *Thermoplastic valves — Fatigue strength — Test method*

ISO 9393-2:2005, *Thermoplastics valves for industrial applications — Pressure test methods and requirements — Part 2: Test conditions and basic requirements*

ISO/TR 10358:1993, *Plastics pipes and fittings — Combined chemical-resistance classification table*

ISO 10931:2005, *Plastics piping systems for industrial applications — Poly(vinylidene fluoride) (PVDF) — Specifications for components and the system*

ISO 12092:2000, *Fittings, valves and other piping system components, made of unplasticized poly(vinyl chloride) (PVC-U), chlorinated poly(vinyl chloride) (PVC-C) acrylonitrile-butadiene-styrene (ABS) and acrylonitrile-styrene-acrylester (ASA) for pipes under pressure — Resistance to internal pressure — Test method*

ISO 12162:1995, *Thermoplastics materials for pipes and fittings for pressure applications — Classification and designation — Overall service (design) coefficient*

ISO 15493:2003, *Plastics piping systems for industrial applications — Acrylonitrile-butadiene-styrene (ABS), unplasticized poly(vinyl chloride) (PVC-U) and chlorinated poly(vinyl chloride) (PVC-C) — Specifications for components and the system — Metric series*

ISO 15494:2004, *Plastics piping systems for industrial applications — Polybutene (PB), polyethylene (PE) and polypropylene (PP) — Specifications for components and the system — Metric series*

EN 558-1:1995, *Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — Part 1: PN-designated valves*

EN 558-2:1995, *Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — Part 2: 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 736-3:1999, *Valves — Terminology — Part 3: Definition of terms*

EN 1092-1:2001, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1267:1997, *Valves — Test of flow resistance using water as test fluid*

EN 1759-1:2004, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, Class designated — Part 1: Steel flanges, NPS ½ to 24*

EN 12107:1997, *Plastics piping systems — Injection-moulded thermoplastics fittings, valves and ancillary equipment — Determination of the long-term hydrostatic strength of thermoplastics materials for injection moulding of piping components*

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

EN 12570:2000, *Industrial valves — Method for sizing the operating element*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 736-1, EN 736-2 and EN 736-3, and the following apply.

NOTE Other terms and definitions relative to thermoplastics materials are given in ISO 15493, ISO 15494 and ISO 10931.

#### 3.1 nominal size DN

alphanumeric designation of size for components of a pipework system, which is used for reference purposes, comprising the letters DN followed by a dimensionless whole number which is indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections

[ISO 6708:1995, definition 2.1]