



SLOVENSKI STANDARD
SIST EN 12569:2000
01-september-2000

Industrial valves - Valves for chemical and petrochemical process industry -
Requirements and tests

Industriearmaturen - Armaturen für die chemische und petrochemische
Verfahrensindustrie - Anforderungen und Prüfungen

Robinetterie industrielle - Appareils de robinetterie destinés aux procédés de l'industrie
chimique et pétrochimique - Prescriptions et essais

Ta slovenski standard je istoveten z: EN 12569:1999

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ICS:

23.060.01 Ventili na splošno Valves in general

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EUROPEAN STANDARD
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Industrial valves - Valves for chemical and petrochemical process industry - Requirements and tests

Robinetterie industrielle - Appareils de robinetterie destinés aux procédés de l'industrie chimique et pétrochimique - Prescriptions et essais

Industriearmaturen - Armaturen für die chemische und petrochemische Verfahrensindustrie - Anforderungen und Prüfungen

This European Standard was approved by CEN on 16 August 1999.

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.

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

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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.

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of an identical text or by endorsement, at the latest by March 2000, and conflicting national standards shall be withdrawn at the latest by March 2000.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

Introduction

This European Standard is based on the experience of the chemical and petrochemical industry and provides requirements additional to those found in valve product standards.

The user of the standard is free to decide to which valves it applies.

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1 Scope

This European Standard applies to valves of DN15 and greater, made of metallic materials for chemical and petrochemical plants. It contains additional requirements to those contained in the relevant European product standards.

Two levels of quality are included. All valves shall meet the requirements of level I. Valves shall meet the requirements of level II only when required by the order.

NOTE: It is assumed that the essential-safety-requirements of the PED (satisfied by European product standards) and safety requirements from other standards are satisfied.

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 edition of the publication referred to applies.

EN 19	<i>Marking of general purpose industrial valves</i>
EN 287-1	<i>Approval testing of welders - Fusion welding - Part 1: Steels</i>
EN 288-1	<i>Specification and qualification of welding procedures for metallic materials - Part 1: General rules for fusion welding</i>
EN 736-3	<i>Valves - Terminology - Part 3: Definition of terms</i>
prEN 1092 -1:1997	<i>Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated- Part 1: Steel flanges</i>
EN 1092 -2:1997	<i>Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 2: Cast iron flanges</i>
EN 1333	<i>Pipework components - Definition and selection of PN</i>
prEN 1349:1999	<i>Industrial process control valves</i>
prEN 1503-1:1995	<i>Valves - Shell materials - Part 1: Steels</i>
prEN 1503-2:1995	<i>Valves - Shell materials - Part 2: ISO-steels</i>
prEN 1503-3:1995	<i>Valves - Shell materials - Part 3: Cast irons</i>
EN 1563	<i>Founding - Spheroidal graphite cast irons</i>
prEN 12116:1996	<i>Industrial valves - Part-turn valve actuator attachment</i>
prEN 12266-1:1999	<i>Industrial valves - Technical conditions of delivery - Part 1: Requirements to be fulfilled by every valve</i>
prEN 12266-2:1999	<i>Industrial valves - Technical conditions of delivery - Part 2: Further requirements</i>
EN 12351	<i>Industrial valves - Protective caps for valves with flanged connections</i>

EN 12454	<i>Founding - Visual examination of surface discontinuities - Steel sand castings</i>
prEN 12516-3:1999	<i>Valves - Shell design strength - Part 3: Experimental method</i>
prEN 12570:1998	<i>Valves - Permissible manual forces for operation of valves</i>
EN ISO 5210	<i>Industrial valves - Multi-turn valve actuator attachments (ISO 5210:1991)</i>
EN ISO 6708	<i>Pipework components - Definition and selection of DN (nominal size) (ISO 6708:1995)</i>
EN ISO 9001	<i>Quality systems - Model for quality assurance in design/development, production, installation and servicing (ISO 9001:1994)</i>
EN ISO 9002	<i>Quality systems - Model for quality assurance in production, installation and servicing (ISO 9002:1994)</i>
EN ISO 9003	<i>Quality systems - Model for quality assurance in final inspection and test (ISO 9003:1994)</i>
prEN ISO 10497:1996	<i>Testing of valves - Fire type-testing requirements (ISO 10497:1992)</i>

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3 Definitions

[SIST EN 12569:2000](#)

For the purposes of this standard, the definitions contained in any standard referred to above, apply.

4 Requirements

Paragraphs marked with a dot [•] indicate requirements to be specified by the purchaser.

4.1 General

The design of the shell shall meet the requirements of prEN 12516-3:1999 or other accepted calculation methods. The following additional force shall allow for the undefined external moments and forces that are produced by the adjoining piping of the vessel:

The additional force, F_{ADD} , shall be calculated from:

$$F_{ADD} = p_s \times A$$

where:

p_s is the allowable pressure, in newtons per square millimetre ;

A is the cross-sectional area ($D^2 \cdot \pi/4$), in square millimetres ;

D is the value of DN, in millimetres.

It is assumed that the section modulus of the valve is equal to or greater than the adjacent pipe and that the materials strengths are equal.

Under these conditions it is assumed that correct function is preserved.

For the visual inspection and the non-destructive tests, all pressure retaining parts shall have a surface finish which makes it possible to conduct the tests in accordance with table 1.

[•] When fire test certification is required it shall be specified by the purchaser. Certification shall be in accordance with prEN ISO 10497:1996 or other standard by agreement.

The valve shall be asbestos free.

[•] If the subcontractors are not certified in accordance with EN ISO 9000 series, (EN ISO 9001, EN ISO 9002, EN ISO 9003, as appropriate), the purchasers can require to be informed about the change of subcontractors for main parts of a valve (e.g. castings, forgings for valves). The purchaser shall be informed about the use of subcontractors for complete valves. The manufacturer shall ensure in every case the interchangeability of parts.

4.2 Quality assurance

4.2.1 Semi-product manufacturer (e.g. foundry, forge, welding shop)

Semi-product manufacturers shall have suitable equipment and qualified personnel for proper manufacture of their materials and products. They shall have test equipment for tests according to applicable standards or other required technical specifications. These manufacturers shall ensure the proper manufacture and processing of the materials and products by means of a quality assurance system, in accordance with EN ISO 9000 series, (EN ISO 9001, EN ISO 9002, EN ISO 9003, as appropriate) audited at regular intervals by an authorised representative (e.g. notified body).

The documentation for materials or semi-products shall be made available to the purchaser on request.

4.2.2 Valve manufacturer

The valve manufacturer shall have suitable equipment and qualified personnel for the further processing of the materials or semi-products used. He shall operate a quality assurance system, in accordance with EN ISO 9000 series, (EN ISO 9001, EN ISO 9002, EN ISO 9003, as appropriate), audited at regular intervals by an authorised representative (e.g. notified body).

The purchaser has the right to witness the quality tests at the manufacturer's and/or supplier's premises and to carry out quality audits.

Documentation shall be made available to the purchaser on request.

4.3 Design

4.3.1 General

Valves shall meet the design requirements of their specific product standards, if such exist.

Where no applicable product standard exists safe and sound engineering practice, including the application of basic standards for industrial valves, shall apply.

The following requirements concerning design shall apply to all valves.

4.3.2 Anti-blow-out shaft/stem

The design of the shaft/stem shall be anti-blow-out type in accordance with EN 736-3.

4.3.3 Gaskets

Gaskets of the shell shall be radially retained against the pressure, except in the case of body bonnet joints up to and including PN 25 (or Class 150) valves.

Spiral wound gaskets sealing the body/cover connection shall be fully retained or provided with outer and inner guide rings.

The sealing face of spiral wound gaskets and metallic ring-joint gaskets shall not be interrupted by bolts, rings etc.

4.3.4 Fugitive emission control

[•] When required, valves shall be fitted with a stem seal specifically designed to prevent fugitive emissions to the atmosphere. If requested by the purchaser a type qualification test shall be carried out. The test procedure and the acceptance criteria shall be as agreed.

Where bellows and diaphragms are used as primary seals, they shall be provided with a secondary packing in case of rupture.

4.3.5 Anti-static protection

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The electrical resistance between body and obturator/stem of the valve shall not exceed 10^6 ohms.

4.3.6 Screwed connections

All screwed connections, e.g. body/cover connections or screwed in parts of valves, shall be properly secured (e.g. by friction or locking) against accidental loosening. Screwed body/cover connections that rely on the thread to seal are not acceptable.

The valve shall be designed so that the risk of media induced crevice corrosion will be avoided.

4.3.7 Wafer and lug type valves

Wafer and lug type valves shall not require an increase in flange bolt load above that which is necessary to seal the valve/flange joints.

4.3.8 Position of the obturator/actuator in quarter turn valves

The position of a lever or indicator shall be in the direction of the pipeline when the valve is open and perpendicular to the pipeline when the valve is closed.

Wrong assembly of the lever or indicator shall be impossible.

The shaft design and the actuator shall indicate the same obturator position whatever accessories are used (e.g. extensions).