

**Krüogeenanumad. Krüogeensüsteemide
hooldamise ventiilid**

Cryogenic vessels - Valves for cryogenic service

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1626:2008 sisaldab Euroopa standardi EN 1626:2008 ingliskeelset teksti.

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English Version

Cryogenic vessels - Valves for cryogenic service

Réceptacles cryogéniques - Robinets pour usage
cryogénique

Kryo Behälter - Absperrarmaturen für tiefkalten Betrieb

This European Standard was approved by CEN on 13 September 2008.

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Contents

Foreword..... 3

1 Scope..... 4

2 Normative references..... 4

3 Terms and definitions 5

4 Requirements..... 5

5 Testing..... 7

6 Cleanliness..... 9

7 Marking..... 9

Annex A (informative) Recommended methods for leak tightness testing of cryogenic valves..... 10

Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EC Directive 97/23/EC (PED) 12

Foreword

This document (EN 1626:2008) has been prepared by Technical Committee CEN/TC 268 "Cryogenic vessels", 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of an identical text or by endorsement, at the latest by May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

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This document will supersede EN 1626:1999.

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.

1 Scope

This European Standard specifies the requirements for the design, manufacture and testing of valves for cryogenic service, i.e. for operation with cryogenic fluids below - 10 °C as well as at ambient conditions to allow for start-up and run-down. It specifies additional requirements for cryogenic service for the appropriate valve product standard.

NOTE a cryogenic fluid (refrigerated liquefied gas) is a gas which is partially liquid because of its low temperature (including totally evaporated liquids and supercritical fluids).

It applies to sizes up to DN 150 including vacuum jacketed cryogenic valves.

This European Standard is not applicable to safety valves and valves for liquefied natural gas (LNG).

It is intended that the valve be designed and tested to satisfy a pressure rating (PN or Class). Valves may then be selected with a PN or Class equal to or greater than the maximum allowable pressure (PS) of the equipment with which it is to be used.

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.

EN 19, *Industrial valves - Marking of metallic valves*

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

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

EN 736-3, *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 1251-1, *Cryogenic vessels - Transportable vacuum insulated vessels of not more than 1000 litres volume - Part 1: Fundamental requirements*

EN 1252-1, *Cryogenic vessels - Materials - Part 1: Toughness requirements for temperatures below - 80 °C*

EN 1333, *Flanges and their joints - Pipework components - Definition and selection of PN*

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*

EN 1797, *Cryogenic vessels - Gas/material compatibility*

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

EN 12266-2, *Industrial valves - Testing of valves - Part 2: Tests, test procedures and acceptance criteria - Supplementary requirements*

EN 12300, *Cryogenic vessels - Cleanliness for cryogenic service*

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

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

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

EN ISO 6708, *Pipework components - Definition and selection of DN (nominal size) (ISO 6708:1995)*

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.

3.1

nominal size (DN)

defined in accordance with EN ISO 6708

3.2

pressure rating

either nominal pressure (PN) as defined in accordance with EN 1333 and EN 1092-1 or Class rating as defined in EN 1759-1

3.3

specified minimum temperature

lowest temperature the valve is specified for

3.4

valve category A

valves intended to be operated with normal frequency (above 20 cycles a year)

3.5

valve category B

valves intended to be operated only occasionally i.e. with a frequency below 20 cycles a year

4 Requirements

4.1 Materials

4.1.1 Metallic materials

Metallic materials to be used in the construction of cryogenic valves shall be suitable for general valve uses as defined in EN 12516-1, EN 12516-2 and EN 12516-4. In addition, the following requirements apply:

4.1.1.1 Toughness requirements

Materials which exhibit a ductile/brittle transition shall have minimum impact test values specified in EN 1252-1. These requirements apply only to the critical parts of the valve exposed to cryogenic temperatures (and not to control elements for example).

Non ferrous materials which can be shown to have no ductile/brittle transition do not require additional impact tests.

4.1.1.2 Corrosion resistance

Materials shall be resistant to or protected from normal atmospheric corrosion and to the medium handled.

4.1.1.3 Oxygen compatibility

If the specified minimum temperature is equal to or below the boiling point of air (approximately $-190\text{ }^{\circ}\text{C}$ at atmospheric pressure) or the valve is intended for oxygen service the materials which are, or likely to be, in contact with oxygen or an oxygen enriched air shall be oxygen compatible in accordance with EN 1797.

4.1.1.4 Flammable gas compatibility

For hydrogen service, see EN 1797.