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**Cisterne za prevoz nevarnega blaga - Oprema posode za prevoz tekočih kemikalij in utekočinjenih plinov - Izpustni ventili in ventili za vstop plina pri praznjenju**

Tanks for the transport of dangerous goods - Tank equipment for the transport of liquid chemicals and liquefied gases - Product discharge and air inlet valves

Tanks für die Beförderung gefährlicher Güter - Ausrüstung für Tanks für die Beförderung von flüssigen Chemieprodukten und Flüssiggasen - Produktabsper- und Gaswechselventile

Citernes de transport de matières dangereuses - Équipements de la citerne pour le transport de produits chimiques liquides et de gaz liquéfié - Vannes de mise en pression de la citerne ou de déchargement du produit

**Ta slovenski standard je istoveten z: prEN 14432**

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**ICS:**

13.300	Varstvo pred nevarnimi izdelki	Protection against dangerous goods
23.020.20	Posode in vsebniki, montirani na vozila	Vessels and containers mounted on vehicles

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 14432**

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ICS 23.020.20; 23.060.99

Will supersede EN 14432:2014

English Version

## Tanks for the transport of dangerous goods - Tank equipment for the transport of liquid chemicals and liquefied gases - Product discharge and air inlet valves

Citernes destinées au transport de matières dangereuses - Équipements de la citerne pour le transport de produits chimiques liquides et de gaz liquéfié - Vannes de mise en pression de la citerne ou de déchargement du produit

Tanks für die Beförderung gefährlicher Güter - Ausrüstung für Tanks für die Beförderung von flüssigen Chemieprodukten und Flüssiggasen - Produktabsper- und Gaswechselventile

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 296.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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## European foreword

This document (prEN 14432:2022) has been prepared by Technical Committee CEN/TC 296 “Tanks for transport of dangerous goods”, the secretariat of which is held by AFNOR.

This document is currently submitted to the enquiry.

This document will supersede EN 14432:2014.

This document has been submitted for reference into:

- the RID and
- the technical annexes of the ADR.

**NOTE** These regulations take precedence over any clause of this document. It is emphasized that RID/ADR are being revised regularly at intervals of two years which may lead to temporary non-compliances with the clauses of this document.

Compared with EN 14432:2014 the following significant changes apply:

- a) change of scope;
- b) 5.2 has been updated;
- c) modifications to 7.5;
- d) modifications to 9;
- e) a new Annex B has been added.

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[oSIST prEN 14432:2022  
atalog/standards/sist/02555102-e109-405d-8d13-  
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**prEN 14432:2022 (E)****1 Scope**

This document specifies the requirements for valves useable on transportable tanks with a minimum working pressure greater than 50 kPa for the transport of dangerous goods by road and rail for the following functions:

Tanks for transport of liquid products:

- secondary closure of gravity discharge lines;
- primary closure on top of the tank (liquid, air, other connections);
- aeration valve on top of the tank;
- and other valves as defined in Annex F of EN 14564:2019.

Tanks for gases:

- secondary closure of bottom discharge lines;
- secondary closure on top of the tank for poisonous gases: liquid phase and gas phase;
- and other valves as defined in Annex F of EN 14564:2019.

This includes the following types of closures:

- valves (e.g. spindle operated valves, plug and ball valves, butterfly valves and gate valves);
- dry disconnect couplings.

Primary closures of the gas phase at the foot of a tank for liquefied gas have to meet the requirements of foot valves according to EN 14433.

NOTE The standard is also applicable to liquefied gases including LPG, however, for a dedicated LPG standard see EN 13175 [3]

**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 736-1, *Valves - Terminology - Part 1: Definition of types of valves*

EN 12266-1:2012, *Industrial valves - Testing of metallic valves - Part 1: Pressure tests, test procedures and acceptance criteria - Mandatory requirements*

EN 12266-2:2012, *Industrial valves - Testing of metallic valves - Part 2: Tests, test procedures and acceptance criteria - Supplementary requirements*

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

EN 13445-3, *Unfired pressure vessels - Part 3: Design*

EN ISO 11299-1:2018, *Plastics piping systems for renovation of underground gas supply networks - Part 1: General (ISO 11299-1:2018)*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>

#### 3.1

##### **maximum working pressure**

##### **MWP**

maximum pressure up to which the valve can be operated, not more than the test pressure divided by 1,3

[SOURCE: ADR/RID chapter 6.8]

#### 3.2

##### **maximum allowable working pressure**

##### **MAWP**

maximum pressure up to which the valve can be operated, not more than the test pressure divided by 1,3 (liquefied gases) respectively 1,5 (liquids)

[SOURCE: ADR/RID chapter 6.7]

#### 3.3

##### **test pressure**

the pressure used for the pressure tests

#### 3.4

##### **nominal size**

##### **DN**

numerical designation of the size of a component which is a convenient round number approximately equal to the manufacturing dimension in millimetres

[SOURCE: EN ISO 11299-1:2018]

### 4 Functions

**4.1** The product discharge valve is a secondary stop valve for tank bottom discharge (liquid chemicals and liquefied gases) and a primary stop valve for tank top discharge (liquid chemicals). For tanks intended for transportation of dangerous goods, it is used for the unloading and loading of the product.

**4.2** The air inlet valve is a primary stop valve according to EN 736-1; it provides a closure on the tank to which a pressurizing or vapour recovery line may be attached.

## 5 Design and materials

### 5.1 General

The manufacturer shall specify, in drawings and other papers, the design and the materials of the product discharge or air inlet valve. Where non-standard flange attachments are used, the valve specification shall include information regarding mating details of the tank flange.

### 5.2 Design

**5.2.1** The valve shall be a stop valve as defined in EN 736-1 or dry disconnect couplings (for examples see Annex B).

NOTE The operating mechanism can be protected from inadvertent operation in transit either by a latching device or by locating within an enclosure. This can be added at the valve, tank or vehicle. As this valves are always closed when not connected, dry couplings are excluded from this.

**5.2.2** As a minimum the position and/or direction of closure of the operating mechanism shall be marked.

NOTE This can be added at the valve, tank or vehicle. The marking can be omitted if the opening direction is intuitional or not applicable (e.g. in case of hand levers of ball valves and dry couplings). In this case this need to be stated in the manual or type approval of the valve.

**5.2.3** Regarding the calculation of flanges and body wall thickness, the requirements given in EN 12516-1, EN 12516-2 and EN 12516-3 or EN 13445-3 apply.

### 5.3 Materials

**5.3.1** The manufacturer shall provide, with the equipment, the material specification for those parts that may come into contact with the product.

**5.3.2** The material elongation at fracture of the pressure-loaded components of the valve shall be a minimum of 12 %.

**5.3.3** The relevant EN reference, where possible, for the valve casing material shall be permanently marked on the valve casing. Should no EN exist then the appropriate national standard designation may be used.

## 6 Test media

### 6.1 Hydraulic tests

Hydraulic tests shall be carried out using a fluid in accordance with EN 12266-2:2012, A.1.5.

### 6.2 Pneumatic tests

Pneumatic tests shall be carried out using a gas in accordance with EN 12266-2:2012, A.1.5.



## 7 Type tests

### 7.1 General

Each valve used for testing shall conform to the drawings and dimensions specified and specification provided by the manufacturer. Each design of valve as verified in Annex A shall be subjected to a type test. Type testing according to 7.2 to 7.5 shall be carried out under ambient conditions. If the valve is required to operate outside the temperature range  $-40\text{ °C}$  to  $+50\text{ °C}$ , the design shall be taken into account either by the type testing or a validated calculation method. For the calculation of the test pressure, EN 12516-3:2002, 6.3 and 6.4 apply.

The tests shall be carried out with the casing/valve attached to a flange equivalent to that for which its use is intended.

### 7.2 Valve casing hydraulic pressure test

The valve casing shall be hydraulically tested, using a test medium conforming to 6.1, at a pressure equal to 2,25 times the MWP, or 400 kPa, whichever is the greater. The test pressure shall be maintained for a minimum of 5 min on the valve casing without permanent deformation occurring.

### 7.3 Valve assembly pressure test

The valve assembly shall be hydraulically or pneumatically tested, using a test medium conforming to 6.1 or 6.2 at a pressure equal to 1,5 times the MWP (MAWP) or 400 kPa, whichever is the greater. The test pressure shall be maintained for a minimum of 10 min on the valve assembly. The leakage shall not exceed Rate A as defined in EN 12266-1:2012, Table A.5. Each assembly pressure test shall be carried out:

- a) with the valve in the closed position and the outlet open to test for leakage from the seats;
- b) with the valve in the open position and the outlet closed off to test for leakage from seals or body joints.

### 7.4 Valve assembly pneumatic tightness test

The valve assembly shall be pneumatically tested, using a test medium conforming to 6.2, at pressures equal to 20 kPa and 1,0 times the MWP (MAWP). The assembly shall be totally immersed in a water bath, or, where total immersion of the valve assembly is not possible, a suitable leak detection fluid shall be applied. The test pressure shall be maintained for a minimum of 10 min on the assembly during which test period leakage shall not exceed Rate A as defined in EN 12266-1:2012, Table A.5. Each pneumatic tightness test shall be carried out:

- a) with the valve in the closed position and the outlet open to test for leakage from the seats;
- b) with the valve in the open position and the outlet closed off to test for leakage from seals or body joints.

### 7.5 Cyclic test

The valve assembly shall be subjected to a mechanical cycle test to a minimum of 1 000 full cycles („open” to „closed” or „connected” and „disconnected”) without pressure and 10 full cycles („open” to „closed” or „connected” and „disconnected”) at MWP (MAWP) or maximum actuation pressure at ambient temperature being applied. After completion of the cyclic test, the valve shall be tested in accordance with 7.4 and the leakage shall not exceed Rate A as defined in EN 12266-1:2012, Table A.5.

## 8 Production tests

### 8.1 General

Each product discharge or air inlet valve produced shall conform to the drawings and other papers in which the design and the materials were specified by the manufacturer. The production tests according to 8.2 to 8.4 shall be carried out under ambient conditions.

### 8.2 Function test

Each valve shall be opened and closed once.

### 8.3 Valve casing pressure test

Each valve casing shall be hydraulically or pneumatically tested, using a test medium conforming to 6.1 or 6.2, at a pressure equal to 1,5 times the MWP (MAWP), or 400 kPa, whichever is the greater. The test pressure shall be maintained as given in EN 12266-1 on the casing and the leakage shall not exceed Rate A as defined in EN 12266-1:2012, Table A.5.

### 8.4 Valve assembly pneumatic tightness test

Each valve assembly shall be pneumatically tested as a finally assembled device, using a test medium conforming to 6.2, at pressures equal to 20 kPa and at least 25 % of the test pressure. The assembly shall be totally immersed in a water bath, or where total immersion of the valve assembly is not possible, a suitable leak detection fluid shall be applied. The test pressure shall be maintained as given in EN 12266-1 on the assembly and the leakage shall not exceed Rate A as defined in EN 12266-1:2012, Table A.5. Each pneumatic tightness test shall be carried out:

- a) with the valve in the closed position and the outlet open to test for leakage from the seats;
- b) with the valve in the open position and the outlet closed off to test for leakage from gland seals or body joints.

## 9 Marking

The valve shall be permanently marked with the following information:

- a) DN (nominal size) of the valve;
- b) manufacturers name or symbol;
- c) manufacturers type (part or drawing number);
- d) material of the valve casing:
  - 1) materials shall be used as specified in EN standards, where possible;
- e) maximum working pressure (MWP) or maximum allowable working pressure (MAWP);
- f) year of manufacture;
- g) unique serial number (batch signing is prohibited);
- h) reference number of this standard (i.e. EN 14432:2021);