SLOVENSKI STANDARD
SIST EN 13316:2003

01-december-2003

Posode za prevoz nevarnih snovi - Obratovalna oprema za posode - Tlaļ no izravnan spodnji ventil

Tanks for transport of dangerous goods - Service equipment for tanks - Pressure balanced footvalve

Tanks für die Beförderung gefährlicher Güter - Bedienungsausrüstung von Tanks - Druckausgeglichenes Bodenventil

Citernes de transport de matieres dangereuses - Equipement de service pour citernes - Clapet de fond a pression compensée

Ta slovenski standard je istoveten z: **EN 13316:2002**

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
23.060.20	Zapirni ventili (kroglasti in pipe)	Ball and plug valves

SIST EN 13316:2003 **en**

EUROPEAN STANDARD

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English version

Tanks for transport of dangerous goods - Service equipment for tanks - Pressure balanced footvalve

Citernes de transport de matières dangereuses - Equipement de service pour citernes - Clapet de fond à pression compensée

Tanks für die Beförderung gefährlicher Güter - Bedienungsausrüstung von Tanks - Druckausgeglichenes Bodenventil

This European Standard was approved by CEN on 31 August 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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Contents

Foreword

This document (EN 13316:2002) has been prepared by Technical Committee CEN /TC 296, "Tanks for transport of dangerous goods", 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 2003, and conflicting national standards shall be withdrawn at the latest by May 2003.

This European Standard has been submitted for reference into the RID and/or in the technical annexes of the ADR. Therefore in this context the standards listed in the normative references and covering basic requirements of the RID/ADR not addressed within the present standard are normative only when the standards themselves are referred to in the RID and/or in the technical annexes of the ADR.

In this European Standard the annexes A, B, C and D are normative and the annex E is informative.

This European Standard forms part of a coherent standards programme comprising the following standards:

Tanks for transport of liquid dangerous goods with vapour pressure not exceeding 110 kPa (absolute pressure) at 50 °C and petrol - Service Equipment

EN 13081, *Tanks for transport of dangerous goods - Service equipment for tanks - Vapour collection adaptor and coupler*

EN 13082, *Tanks for transport of dangerous goods - Service equipment for tanks - Vapour transfer valve*

EN 13083, *Tanks for transport of dangerous goods - Service equipment for tanks - Adaptor for bottom loadingand unloading*

EN 13308, *Tanks for transport of dangerous goods - Service equipment for tanks - Non-pressure balanced footvalve*

EN 13314, *Tanks for transport of dangerous goods - Service equipment for tanks - Fill hole cover*

EN 13315, *Tanks for transport of dangerous goods - Service equipment for tanks - Gravity discharge coupler*

EN 13316, *Tanks for transport of dangerous goods - Service equipment for tanks - Pressure balanced footvalve*

EN 13317, *Tanks for transport of dangerous goods - Service equipment for tanks - Manhole cover assembly*

WI 00296009, *Tanks for transport of dangerous goods - Service equipment for tanks - Pressure and vacuum breather vent*

WI 00296010, *Tanks for transport of dangerous goods - Service equipment for tanks - Emergency pressure relief valve.*

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The pressure balanced footvalve, also called emergency valve or internal security valve, the subject of this standard, is an internal self closing stop valve ensuring the primary containment to confine the transported dangerous substances within the tank when closed.

It allows the transfer of dangerous substances between a tank compartment and its run-off pipe when externally actuated. It does not allow flow of dangerous substances in either the loading or unloading direction when not externally actuated, and stops the flow if the external actuation is interrupted or disengaged.

1 Scope

This European Standard covers the pressure balanced footvalve for bottom loading and unloading and specifies the performance requirements, dimensions and tests necessary to verify the compliance of the equipment to this standard.

The equipment specified by this standard is applicable to liquid petroleum products and other dangerous substances of Class 3 of ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road – (flammable liquids) which have a vapour pressure not exceeding 110 kPa at 50 °C and petrol, and which have no-sub-classification as toxic or corrosive.

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 (including amendments).

prEN 12266-1:1999, *Industrial valves – Testing of valves – Part 1: Tests, test procedures and acceptance criteria to be fulfilled by every valve.*

EN 12266-2:2002, *Industrial valves – Testing of valves – Part 2: Supplementary tests, test procedures and acceptance criteria.*

ISO 2859-1, *Sampling procedures for inspection by attributes – Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection.*

3 Terms and definitions

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

3.1
run-off pipe
the transfer pipe, including equipment and fittings, on the vehicle which connects the footvalve to the loading/unloading adaptor

3.2
self closing valve
a valve held in the closed position by means of stored energy (such as a spring) which opens only by application of external force and which closes when the external force is removed

3.3
pressure balanced
equilibrium of substance pressure on both sides of the valve's obturator

3.4
maximum allowable working pressure (MAWP)
the maximum pressure to which the equipment is designed to operate

4 Functions

The pressure balanced footvalve shall:

— contain substance within the tank compartment when closed;

— when opened, allow flow of substance into the tank compartment for bottom loading;

— when opened, allow flow of substance into the run-off pipe for unloading;

— when closed, prevent flow of substance into the tank compartment;

— stop the flow of substance into the tank compartment upon removal of the means of opening actuation.

5 Design characteristics

5.1 Pressure rating

The pressure balanced footvalve shall be designed for a working pressure of at least 500 kPa.

A surge pressure of 5 times the maximum allowable working pressure shall not jeopardize the tightness of the housing or the functioning of the pressure balanced footvalve.

5.2 Dimensions

The pressure balanced footvalve shall be designed for use with DN100 nominal bore pipe.

5.3 Mounting

— The tank mounting flange shall be in accordance with Annex A;

— The pipe connection flange shall be in accordance with Annex B or Annex C, according to the specified type.

5.4 Bottom loading flow characteristics

— The footvalve shall be suitable for bottom loading rates up to 150 m^3/h, at a working pressure up to 500 kPa;

— The footvalve design shall be such that turbulence, jetting or spraying of product is effectively controlled.

5.5 Actuation

5.5.1 The pressure balanced footvalve shall be actuated by mechanical, pneumatic or other means.

5.5.2 The pressure balanced footvalve shall close if its actuating means fails or is disconnected.

5.5.3 The closing time of the valve following removal of the actuation signal shall be between 0,5 s and 2 s for bottom loading rates, as indicated in 5.4.

NOTE When the pressure balanced footvalve means of actuation is de-activated while the flow is in the loading direction, it is necessary that the shock pressure resulting from this action is limited to avoid damage to the run-off pipework or the gantry loading system.

5.5.4 The setting of the valve to the open position shall be visible.

5.5.5 A mechanical means of externally operating the footvalve may be provided for use in case of an emergency.

5.5.6 The means of actuation of the footvalve shall be designed so as to prevent inadvertent opening through impact or unconsidered action.

5.6 Break-away security

5.6.1 The footvalve seat shall be designed to be located within the envelope of the tanker compartment.

5.6.2 The footvalve shall be designed such that in the event of accidental damage, the external housing shall break away, leaving the footvalve sealing mechanism within the tank compartment intact.

5.6.3 The impact energy required to break away the external housing of the footvalve shall not exceed 1kJ.

5.7 Temperature range

Unless otherwise specified, the design temperature range shall be - 20 °C to 50 °C.

Where the footvalve is subjected to more severe conditions, the design temperature range shall be extended to - 40 °C or + 70 °C as applicable.

5.8 Materials of construction

The manufacturer shall provide with the equipment a full material specification for those parts which may come into contact with the dangerous substances specified in the Scope.

5.9 Electrical resistance

The electrical resistance between any conductive part of the valve which may come into contact with the dangerous substances and the main body of the valve shall not exceed 10^6 Ω.

Provision shall be made for the bonding of the main body of the valve to the tank such that the electrical resistance between the two shall not exceed 10 Ω.

5.10 Strainer

The footvalve shall be capable of accepting a strainer to minimize the possibility that loose foreign objects within the tank might prevent the closure of the footvalve.

6 Tests

6.1 General

Two classes of tests are required, production tests and type tests.

Testing methods and procedures shall comply with the requirements of prEN 12266-1:1999 and EN 12266-2:2002 except as specified or amended within this standard.

6.2 Production tests

6.2.1 General

The number, frequency and sampling methods of production test samples shall not be less than those specified within ISO 2859-1, (AQL of 2,5).