



BSI Standards Publication

Tanks for the transport of dangerous goods — Service equipment — Cap for the adaptor for bottom loading and unloading

National foreword

This British Standard is the UK implementation of EN 16249:2013.

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A list of organizations represented on this committee can be obtained on request to its secretary.

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EN 16249

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EUROPÄISCHE NORM

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ICS 23.020.20

English Version

Tanks for the transport of dangerous goods - Service equipment - Cap for the adaptor for bottom loading and unloading

Citernes destinées au transport de matières dangereuses -
Équipement de service - Chapeau pour l'adapteur pour le
chargement et déchargement par le bas

Tanks für die Beförderung gefährlicher Güter -
Bedienungsausrüstung - Kappe für VK-Kupplung für
Untenbefüllung und -entladung

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Foreword

This document (EN 16249:2013) 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of an identical text or by endorsement, at the latest by February 2014, and conflicting national standards shall be withdrawn at the latest by February 2014.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This European Standard forms part of a coherent standards programme about service equipment of tanks for transport of liquid dangerous goods with vapour pressure not exceeding 110 kPa (absolute pressure) at 50 °C and of petrol. That programme comprises the following European Standards:

- 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 loading and 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*;
- EN 14595, *Tanks for transport of dangerous goods — Service equipment for tanks — Pressure and Vacuum Breather Vent*;
- EN 14596, *Tanks for transport of dangerous goods — Service equipment for tanks — Emergency pressure relief valve*;
- EN 16257, *Tanks for the transport of dangerous goods — Service equipment — Footvalve sizes other than 100 mm dia (nom)*.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece,

Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The cap for the adaptor for bottom loading and unloading, the subject of this European Standard, is the third closure device providing additional confinement of the dangerous substances within the tank when fitted.

Additionally, when fitted, it provides mechanical protection for the sealing face of the adaptor nose.

1 Scope

This European Standard is applicable to the cap used to provide protection and end closing for the adaptor for bottom loading and unloading of tanks for the transport of dangerous goods. It specifies the performance requirements, critical dimensions and tests necessary to verify the compliance of the equipment with this European Standard.

The equipment specified by this European Standard is suitable for use with liquid petroleum products and other dangerous substances of Class 3 of ADR ¹⁾ (flammable liquids) that have a vapour pressure not exceeding 110 kPa at 50 °C, including petrol, and that are not sub-classified as toxic or corrosive.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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 13083:2008, *Tanks for transport of dangerous goods — Service equipment for tanks — Adaptor for bottom loading and unloading*

EN 13315:2002, *Tanks for transport of dangerous goods — Service equipment for tanks — Gravity discharge coupler*

EN 14564:2013, *Tanks for transport of dangerous goods — Terminology*

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 document, the terms and definitions given in EN 13083:2008, EN 13315:2002 and EN 14564:2013 apply.

4 Functions

When fitted, the requirements for the cap for the adaptor shall provide

- containment of substance within the tank,
- mechanical protection for the sealing face of the adaptor nose, and

1) ADR: *European Agreement concerning the International Carriage of Dangerous Goods by Road*

- a method of removal which ensures complete and safe release of pressure behind the cap before the cap is completely removed.

5 Design characteristics

5.1 General

The cap for the adaptor shall comply with the minimum requirements specified in 5.2 to 5.8.

5.2 Pressure rating

The cap shall be designed for a working pressure of at least 40 kPa.

5.3 Dimensions

The requirements shall be in accordance with EN 13315:2002, 5.5.

5.4 Mounting

The requirements shall be in accordance with EN 13315:2002, 5.1.1 and 5.1.2.

5.5 Temperature range

The requirements shall be in accordance with EN 13315:2002, 5.4.

5.6 Materials of construction

The requirements shall be in accordance with EN 13315:2002, 5.3.

Additionally, movable parts such as covers, closures, etc. that are liable to come into frictional or percussive contact with aluminium parts of the tank vehicle shall not be made of unprotected corrodible steel.

Whenever possible, selected materials shall be recyclable and sustainable.

5.7 Electrical resistance

The electrical resistance between any conductive part of the coupler coming into contact with the dangerous substances and the main body of the coupler shall not exceed $10^6 \Omega$.

5.8 Attachment

The cap shall incorporate a method of attachment to its associated adaptor that shall enable the cap to be attached to and/or removed from the adaptor without interfering with the connection of the adaptor to loading or unloading devices.

The cap shall be capable of being secured against any unintended opening.

The attachment device shall conform to the electrical resistance requirements specified in 5.7.

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 EN 12266-1 and EN 12266-2, except as specified or amended within this European Standard.

6.2 Production tests

6.2.1 General

Production tests shall comprise

- tightness test (see EN 12266-1:2012, A.4) and
- operability test (see EN 12266-2:2012, B.1).

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).

6.2.2 Tightness test

- 6.2.2.1 Test pressure: 40 kPa.
- 6.2.2.2 Test duration: See EN 12266-1:2012, A.2.
- 6.2.2.3 Acceptance criteria: See EN 12266-1:2012, A.3.3.

6.2.3 Operability test

- 6.2.3.1 Test scope: To confirm the ability of the cap for the adaptor to clamp and un-clamp to the adaptor nose according to the minimum tolerances of Figure 1.
- 6.2.3.2 Test method: See EN 12266-2:2012, B.1.

6.2.4 Test results

The test results shall be recorded and maintained in accordance with the manufacturer's procedures.

6.3 Type tests

6.3.1 General

A minimum of two production samples of each model type shall be type tested to demonstrate the performance and mechanical strength of the design.

NOTE Devices having one design, size and set pressure are considered to be of one model type.

Unless otherwise noted, all type tests shall be performed at maximum and minimum design temperatures.

Type tests shall comprise

- tightness test (see EN 12266-1:2012, A.4) and

- operability test (see EN 12266-2:2012, B.1).

6.3.2 Tightness test

The tightness test shall be performed in accordance with the requirements of the production test.

The test shall be carried out only under ambient conditions.

6.3.3 Operability test

The operability test shall be performed in accordance with the requirements of the production test.

6.3.4 Test results

Test results shall be recorded and maintained for a time period not be less than the manufactured life of the product.

7 Marking

The cap shall have a permanent identification marking including the following:

- reference to this European Standard;
- manufacturer's name and/or logo;
- manufacturer's type or assembly number;
- serial number and/or date of manufacture and/or batch number;
- any special operating conditions.

8 Installation, operating and maintenance recommendations

Installation, operation and maintenance instructions shall be provided for the equipment.

Additional dimensions shall be in accordance with EN 13083:2008, Annex A.

Dimensions in millimetres

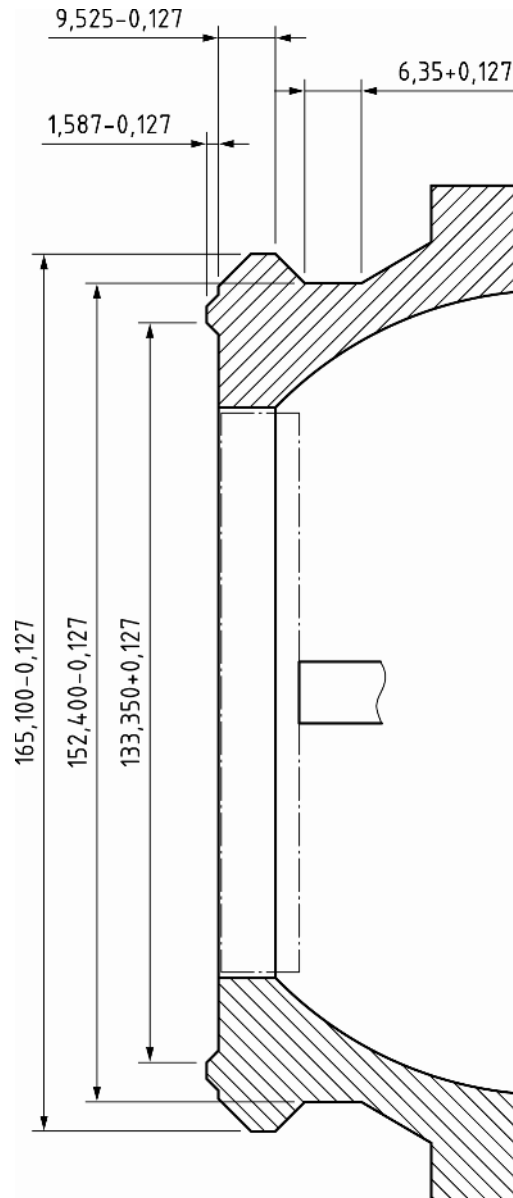


Figure 1 — Test adaptor nose

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