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Railway applications – Tank wagons – Part 3: Bottom filling and emptying devices for gases liquefied under pressure



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Denna standard ersätter SS-EN 12561-3, utgåva 1.

The European Standard EN 12561-3:2011 has the status of a Swedish Standard. This document contains the official version of EN 12561-3:2011.

This standard supersedes the Swedish Standard SS-EN 12561-3, edition 1.

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Denna standard är framtagen av kommittén för Järnvägar, SIS/TK 254.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12561-3

June 2011

ICS 13.300; 45.060.20

Supersedes EN 12561-3:2002

English Version

Railway applications - Tank wagons - Part 3: Bottom filling and emptying devices for gases liquefied under pressure

Applications ferroviaires - Wagons citernes - Partie 3:
Dispositifs de remplissage et de vidange par le bas pour
gaz liquéfiés sous pression

Bahnanwendungen - Kesselwagen - Teil 3: Untenliegende
Füll- und Entleereinrichtungen für unter Druck verflüssigte
Gase

This European Standard was approved by CEN on 3 June 2011.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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 United Kingdom.



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Foreword

This document (EN 12561-3:2011) has been prepared by Technical Committee CEN/TC 256 Railway applications, the secretariat of which is held by DIN.

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 December 2011, and conflicting national standards shall be withdrawn at the latest by December 2011.

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 supersedes EN 12561-3:2002.

This European Standard *Railway applications* — Tank wagons consists of the following parts:

- *Part 1: Identification plates for tank wagons for the carriage of dangerous goods;*
- *Part 2: Bottom emptying devices for liquid products including vapour return;*
- *Part 3: Bottom filling and emptying devices for gases liquefied under pressure;*
- *Part 4: Devices for top filling and emptying of liquid products;*
- *Part 5: Devices for vapour return while filling or emptying of liquid products;*
- *Part 6: Manholes;*
- *Part 7: Platforms and ladders;*
- *Part 8: Heating connections.*

The changes made during this revision are editorial because of the change of the title of part 1 and the necessary updates of references.

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, 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 requirements on and characteristics of bottom filling and emptying devices on tank wagons used for the carriage of gases liquefied under pressure having a test pressure up to 2,9 MPa. This European Standard specifies the important dimensions and arrangements for the filling and emptying connections. Safety functions of these devices are subject to RID requirements and not described in this document.

This European Standard applies to new tank wagons built after the 1st January 2010.

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 14564, *Tanks for transport of dangerous goods – Terminology*

EN ISO 286-1, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 1: Basis of tolerances, deviations and fits (ISO 286-1)*

ISO 3419, *Non-alloy and alloy steel butt-welding fittings*

ISO 4200:1991, *Plain end steel tubes, welded and seamless — General tables of dimensions and masses per unit length*

ISO 7005-1:1992, *Metallic flanges — Part 1: Steel flanges*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14564 and the following apply.

3.1

stop valve

part of the internal bottom valve comprising the disc, the gasket, the spring and the seat

4 Requirements

4.1 General

The liquid and vapour phase system shall consist of DN 80 pipes and valves.

The external connection interface shall be:

- DN 80 diameter for the liquid phase, and
- DN 50 diameter for the vapour phase.

4.2 Constituent parts

Both phases shall be equipped with:

- a) an internal quick closing bottom valve according to 5.3,
- b) an external branch pipe according to 5.5,
- c) at each end of the branch pipe a flanged external valve according to 5.4 fitted e.g. with threaded coupling according to Annex A.

The vapour phase branch pipe shall be identified by the letters "GAS" of 30 mm height embossed on a metallic plate as shown in Figure 1 which is permanently fixed on both sides of the tank wagon.



Figure 1 — Plate identifying the vapour phase branch pipe

4.3 Locks and seals

External valves as well as internal bottom valves shall be capable of being secured in their closed position to prevent any unintentional opening through impact or an inadvertent act.

The operating controls of the external valves shall be equipped with devices to which a seal can be properly attached.

For customs seals, a hole of diameter 15 mm shall be required.

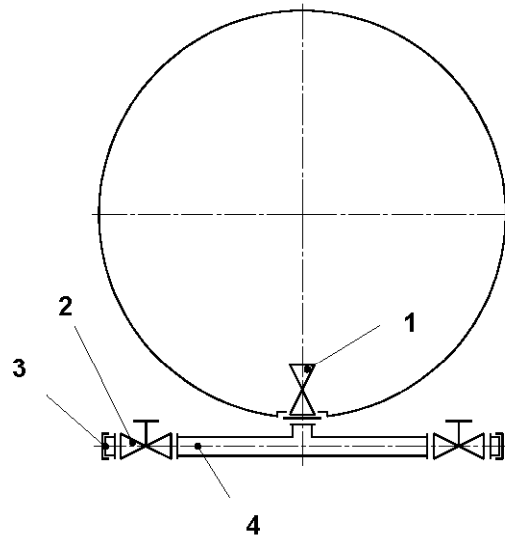
4.4 Dimensions

They are given in millimetres. Unless otherwise indicated in this European Standard the tolerances of EN ISO 286-1 apply.

5 Arrangement and structure

5.1 Fittings for the liquid phase

The fittings for the liquid phase shall be as shown in Figure 2.



Key

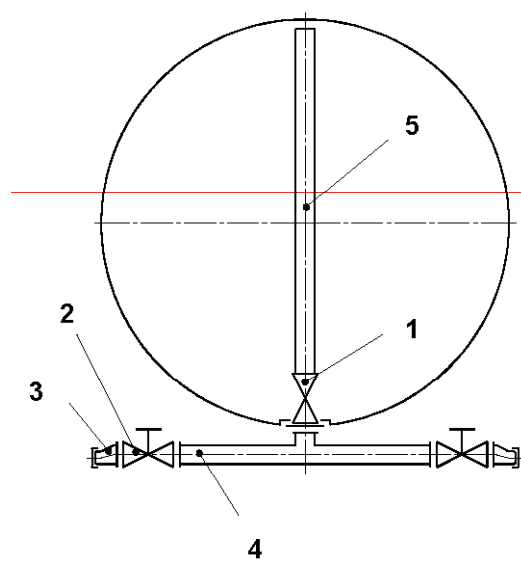
- 1 internal quick closing bottom valve DN 80
- 2 external valve DN 80
- 3 threaded coupling DN 80
- 4 branch pipe DN 80

Figure 2 — Example of arrangement for the liquid phase

5.2 Fittings for the vapour phase

The vapour phase shall include a pressure compensation line located inside the tank.

The fittings for the vapour phase shall be as shown in Figure 3.



Key

- 1 internal quick closing bottom valve DN 80
- 2 external valve DN 80
- 3 threaded coupling DN 50
- 4 branch pipe DN 80
- 5 pressure compensation line DN 80

Figure 3 — Example of arrangement for the vapour phase

5.3 Quick closing bottom valve system

In addition to the requirements in RID, the quick closing bottom valve system needs to meet the following requirements:

- a) The quick closing bottom valve shall be equipped with an instant operation safety device which closes the valve automatically in the event of an unintended movement of the tank wagon or a fire. This shall be achieved by means of a control cable as shown in Figure 4 which connected to an external rail hook. The guide tube and attachment ring for the control cable shall for a buffer height of 1 060 mm be arranged and dimensioned as shown in Figure 4 below. The inner diameter of the attachment ring shall be 50 mm. When the bottom valve is closed, the control cable including the ring shall remain in gauge.
- b) Have the operating controls positioned at a sufficient distance from the outlet pipes to permit easy access for operation.