

BS EN 12561-5:2011



BSI Standards Publication

Railway applications — Tank wagons

Part 5: Devices for vapour return while filling or emptying of liquid products

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of EN 12561-5:2011. It supersedes BS EN 12561-5:2002 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RAE/1/-/9, Railway Applications - Wagons (Tank/Freight).

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© BSI 2011

ISBN 978 0 580 72811 2

ICS 13.300; 45.060.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 July 2011.

Amendments issued since publication

Date	Text affected
------	---------------

English Version

**Railway applications - Tank wagons - Part 5: Devices for vapour
return while filling or emptying of liquid products**

Applications ferroviaires - Wagons citernes - Partie 5:
Dispositifs de récupération de vapeur pour remplissage ou
vidange de produits liquides

Bahnanwendungen - Kesselwagen - Teil 5:
Gaspendeleinrichtungen für Be- und Entladung von
flüssigen Stoffen

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.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements	6
4.1 General.....	6
4.2 Manhole	6
4.3 Depressurisation vapour connector.....	6
4.4 Safety valves	6
4.5 Dimensions.....	6
5 Positioning of equipment and reserved spaces.....	6
Bibliography	8

Figure

Figure 1 — Positioning of equipment and reserved spaces	7
---	---

Foreword

This document (EN 12561-5:2011) 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 12561-5:2002.

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.

Introduction

The top vapour return devices which are elements of the devices for filling and emptying devices, as defined in this European Standard are composed of:

- a depressurisation vapour connector, defined in this part and mainly used before filling, and
- a vapour return line including auto vent valve, defined in EN 12561-2 and mainly used during emptying.

1 Scope

This European Standard specifies the requirements on and characteristics of top devices of tank wagons fitted for bottom emptying only and filling through the manhole and used for liquid substances of RID. Safety functions of these devices are subject to RID requirements and not described in this document.

This European Standard specifies in particular the important dimensions and arrangements for the connections of such tank wagons.

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

NOTE To take account of the loading gauge restrictions within Great Britain this European Standard does not apply to tank wagons operating exclusively therein.

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 12561-2, *Railway applications — Tank wagons — Part 2: Bottom emptying devices for liquid products including vapour return*

EN 12561-6, *Railway applications — Tank wagons — Part 6: Manholes*

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

EN ISO 4126-1, *Safety devices for protection against excessive pressure — Part 1: Safety valves (ISO 4126-1:2004)*

EN ISO 4126-2, *Safety devices for protection against excessive pressure — Part 2: Bursting disc safety devices (ISO 4126-2:2003)*

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 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

depressurisation vapour connector

connection enabling the equalisation of pressure between the tank wagon and the vapour recovery system of the filling station in order to minimise volatile organic compound emissions

4 Requirements

4.1 General

The devices in this European Standard shall allow the filling of tank wagons through the manhole with a loading arm. The tank wagon shall be designed so that the loading arm does not come into contact with or damage the internal bottom valve when inserted into the tank wagon.

Where tank wagons are fitted with a depressurisation vapour connector, it shall conform to this standard.

Bottom emptying devices shall conform to EN 12561-2.

4.2 Manhole

The tank wagons shall be fitted with swing bolt manholes according to EN 12561-6 situated on the top centre line and in the proximity of the longitudinal centre line of the tank. The manhole shall be situated so that its vertical projection on the bottom of the tank is not less than 100 mm from any part of the internal bottom valve.

The manhole internal diameter shall be a nominal minimum of 500 mm and its top opening shall be in a horizontal plane.

The manhole shall not restrict the operation of the vapour sealing device on the loading arm assembly.

4.3 Depressurisation vapour connector

The connecting face of the depressurisation vapour connector shall be in a horizontal plane.

The connector is to be provided with a closure with an attachment facility to a chain or a stainless steel wire cable. This attachment facility shall be fit for purpose and of minimum length to avoid contact with the electric overhead line.

Where required by RID, the depressurisation vapour connector shall be fitted with a flame trap.

4.4 Safety valves

Where tank wagons are fitted with pressure and/or vacuum relief valves, they shall conform to the regulations and EN ISO 4126-1.

Where required by RID, the safety valve shall be preceded by a bursting disc. The bursting disc shall conform to EN ISO 4126-2.

Safety valve assemblies shall be fitted in the vapour space of the tank on nozzles DN 80 PN 10 according to ISO 7005-1:1992.

4.5 Dimensions

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

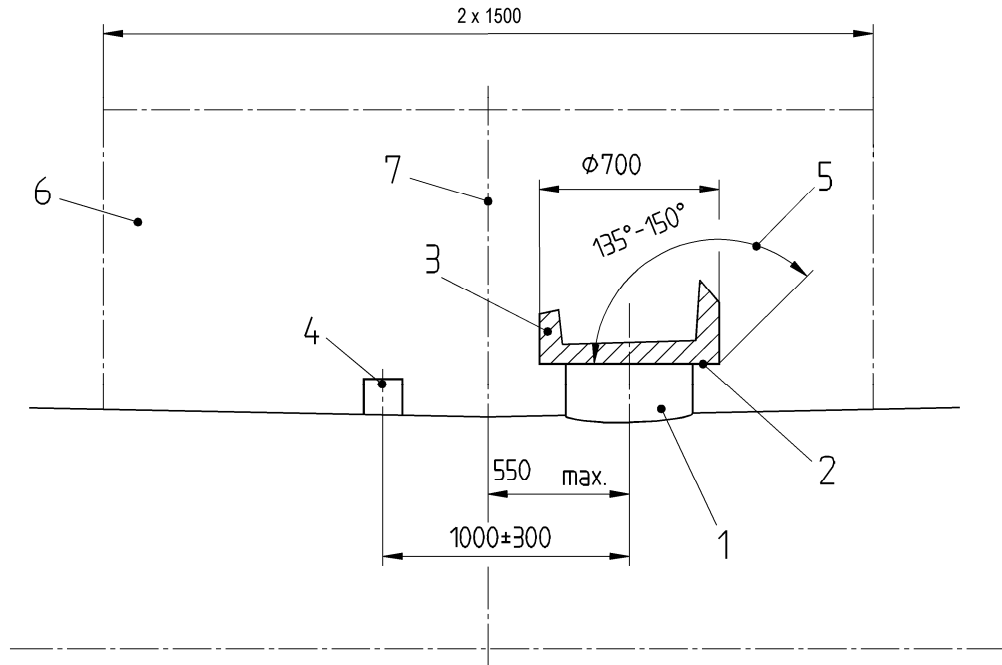
5 Positioning of equipment and reserved spaces

Except for specific cases agreed between the customer and the manufacturer:

- the connecting faces of the manhole and depressurisation vapour connector shall be positioned entirely within the dimensions shown in Figure 1;

- furthermore, the depressurisation vapour connector shall be located close to the manhole and on the opposite side to the manlid hinge as shown in the Figure 1.

Dimensions in millimetres



Key

- 1 manhole
- 2 top manhole plane
- 3 free space for loading arm
- 4 depressurisation vapour connector
- 5 opening angle of manhole lid
- 6 reserved space for filling and emptying devices
- 7 middle of tank wagon

Figure 1 — Positioning of equipment and reserved spaces

Bibliography

- [1] EN 14025, *Tanks for the transport of dangerous goods — Metallic pressure tanks — Design and Construction*
- [2] RID, *Regulations concerning the International Carriage of Dangerous Goods by Rail implementing Commission Directives 2003/28/EC and 2003/29/EC*

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. Details and advice can be obtained from the Copyright & Licensing Department.

Useful Contacts:

Customer Services

Tel: +44 845 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 845 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com



...making excellence a habit.™