



NSAI
Standards

Irish Standard
I.S. EN 14025:2018&AC:2020

Tanks for the transport of dangerous goods - Metallic pressure tanks - Design and construction

I.S. EN 14025:2018&AC:2020

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 14025:2018/AC:2020

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 14025:2018

Published:

2018-07-25

This document was published under the authority of the NSAI and comes into effect on:

2020-04-06

ICS number:

13.300

23.020.20

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 14025:2018&AC:2020 is the adopted Irish version of the European Document EN 14025:2018, Tanks for the transport of dangerous goods - Metallic pressure tanks - Design and construction

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

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 14025:2018/AC

NORME EUROPÉENNE

March 2020

EUROPÄISCHE NORM

ICS 13.300; 23.020.20

English version

Tanks for the transport of dangerous goods - Metallic pressure tanks - Design
and construction

Citernes pour le transport de matières
dangereuses - Citernes métalliques sous
pression - Conception et fabrication

Tanks für die Beförderung gefährlicher Güter
- Metallische Drucktanks - Auslegung und
Bau

This corrigendum becomes effective on 18 March 2020 for incorporation in the official English version of the EN.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2020 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.
Tous droits d'exploitation sous quelque forme et de quelque manière que ce soit réservés dans le monde entier
aux membres nationaux du CEN.
Alle Rechte der Verwertung, gleich in welcher Form und in welchem Verfahren, sind weltweit den nationalen
Mitgliedern von CEN vorbehalten.

Ref. No.: EN 14025:2018/AC:2020 E

EN 14025:2018/AC:2020 (E)

1 Modification to 1, Scope

In the 2nd paragraph, replace the 5th sentence with the following:

For portable tanks see also RID/ADR, Chapter 4.2 and Sections 6.7.2 and 6.7.3.

2 Modification to 6.3.5.2.6

Replace Formula (37) with the following:

$$p \times \left[A_p + 0,5 (A_{fm} + A_{fb} + A_{fp}) \right] \leq (f_d \times A_{fm} + f_{d,b} \times A_{fb} + f_{d,p} \times A_{fp})$$

3 Modification to A.6.4.2

Replace the last part of the last sentence with the following:

[...] which corresponds to the actual pressure $P = 0,04$ MPa.

EUROPEAN STANDARD

EN 14025

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2018

ICS 13.300; 23.020.20

Supersedes EN 14025:2013+A1:2016

English Version

Tanks for the transport of dangerous goods - Metallic pressure tanks - Design and construction

Citernes pour le transport de matières dangereuses -
Citernes métalliques sous pression - Conception et
fabrication

Tanks für die Beförderung gefährlicher Güter -
Metallische Drucktanks - Auslegung und Bau

This European Standard was approved by CEN on 1 July 2018.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	4
1 Scope	6
2 Normative references	6
3 Terms, definitions and symbols	7
3.1 Terms and definitions	7
3.2 Symbols.....	8
4 Materials	9
4.1 General.....	9
4.2 Compatibility	9
5 Design	10
5.1 General.....	10
5.2 Minimum shell thickness	10
5.3 Reduction of shell thickness.....	10
5.4 Protection of the shell	11
5.5 Protection of equipment.....	11
5.6 Other design requirements	12
6 Calculation	12
6.1 General.....	12
6.1.1 General.....	12
6.1.2 Calculation scheme for the wall thickness of metallic pressure tanks of RID/ADR Chapter 6.8	12
6.1.3 Calculation scheme for the wall thickness of metallic portable pressure tanks of RID/ADR Chapter 6.7	13
6.2 Design criteria.....	14
6.3 Calculation for internal pressure	16
6.3.1 General.....	16
6.3.2 Wall thickness of the cylindrical section	16
6.3.3 Wall thickness of ends.....	17
6.3.4 Wall thickness of conical sections.....	21
6.3.5 Openings and reinforcements	23
6.3.6 Manhole covers	30
6.3.7 Flanges, joints, bolts.....	35
6.4 Calculation for external pressure	37
6.4.1 General.....	37
6.4.2 Tanks, where external over pressure is part of operating conditions	37
6.4.3 Tanks, where external over pressure is not part of operating conditions.....	37
6.4.4 Test.....	37
6.5 Tank to frame connection/interface.....	38
7 Construction and manufacturing	38
7.1 General requirements	38
7.2 Cutting.....	38
7.3 Forming.....	39
7.3.1 General.....	39

7.3.2	Cold forming	39
7.3.3	Hot forming.....	39
7.3.4	Ends	40
7.3.5	Heat treatment and normalizing.....	40
7.4	Welding	40
7.4.1	Qualification	40
7.4.2	Welded joints	40
7.4.3	Examination and testing of welds.....	41
7.4.4	Temporary attachments	41
7.5	Manufacturing tolerances	41
7.5.1	Plate alignment	41
7.5.2	Defects of form.....	42
7.5.3	Thickness.....	42
7.5.4	Dished ends.....	42
7.5.5	Cylindrical sections.....	42
8	Repairs.....	43
8.1	General	43
8.2	Repair of surface defects in the parent metal	43
8.3	Repair of weld defects.....	43
Annex A (informative) Sample calculation for tank containers according to RID/ADR Chapter 6.8.....		44
A.1	Introduction	44
A.2	Dimensions, characteristics of materials, operating and testing conditions.....	44
A.3	Calculation according to branch A.....	45
A.4	Calculation according to branch B.....	45
A.5	Calculation according to branch C	46
A.6	Calculation according to branch D	48
A.7	Results	57
Annex B (informative) Explosion pressure shock resistant design of tanks		59
Bibliography		61

EN 14025:2018 (E)

European foreword

This document (EN 14025:2018) has been prepared by Technical Committee CEN/TC 296 "Tanks for the 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 January 2019, and conflicting national standards shall be withdrawn at the latest by January 2019.

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

This document supersedes EN 14025:2013+A1:2016.

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

Compared with EN 14025:2013+A1:2016 the following significant changes apply:

- a) alignment with RID/ADR as known at publication of this European Standard;
- b) modification of the definition "pressure tank" (3.1.1), removing the reference to test pressure;
- c) deletion of requirements about the thickness of the flange of the end (6.3.3.3);
- d) amendment of the definition of the thickness e_p in Figure 8 (examples for reinforcements of shell openings) and Figure A.2 (example for a manhole opening) as well as in Formula (39); Sub-Figure 8 e) amended, new Sub-Figure 8 g) added;
- e) external pressure resistance testing (6.4.4) replaced with a reference to EN 12972;
- f) requirements for the manufacturer's certificate or acceptance test certificate removed and clarified that it is issued according to agreement with the buyer/customer (7.1.3);
- g) examination and testing of welds (7.4.3) replaced with a normative reference to EN 12972, except for requirements for the welding of the large end of a cone without a knuckle to a cylinder;
- h) manufacturing tolerances concerning the plate alignment (7.5.1) adjusted in accordance with EN 12972;
- i) explosion pressure shock resistant design of tanks (informative Annex B) amended so that dished ends are included;
- j) normative references updated;
- k) alignment of the whole document with the current principles and rules for the structure and drafting of CEN and CENELEC documents.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 14025:2018 (E)

1 Scope

This document specifies the minimum requirements for the design and construction of metallic pressure tanks having a maximum working pressure exceeding 50 kPa (0,5 bar), for the transport of dangerous goods by road and rail and sea. This document includes requirements for openings, closures and structural equipment; it does not cover requirements of service equipment. For tanks for the transport of cryogenic liquids, EN 13530-1 and EN 13530-2 apply.

Design and construction of pressure tanks according to the Scope of this document are primarily subject to the requirements of RID/ADR, Subsections 6.8.2.1, 6.8.3.1 and 6.8.5, as relevant. In addition, the relevant requirements of RID/ADR, Table A, columns 12 and 13, to Chapters 3.2, 4.3 and Subsection 6.8.2.4 apply. For the structural equipment RID/ADR, Subsections 6.8.2.2 and 6.8.3.2 apply, as relevant. The definitions of RID/ADR, Subsection 1.2.1, are referred to. For portable tanks see also RID/ADR, Chapter 4.2 and Sections 6.7.2 and 6.7.2. In addition, the relevant requirements of RID/ADR, Table A, Columns 10 and 11 to Chapters 3.2, 4.2, and Sections 6.7.2 and 6.7.3 apply. The paragraph numbers above relate to the 2017 issue of RID/ADR which are subject to regular revisions. This can lead to temporary non-compliances with EN 14025.

This document is applicable to liquefied gases including LPG; however for a dedicated LPG standard see EN 12493.

If not otherwise specified, provisions which take up the whole width of the page apply to all kind of tanks. Provisions contained in a single column apply only to:

tanks according to RID/ADR Chapter 6.8 (left-hand column);	portable tanks according to RID/ADR Chapter 6.7 (right-hand column).
--	--

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 1591-1, *Flanges and their joints – Design rules for gasketed circular flange connections – Part 1: Calculation*

EN 12972, *Tanks for transport of dangerous goods – Testing, inspection and marking of metallic tanks*

EN 13094:2015, *Tanks for the transport of dangerous goods – Metallic tanks with a working pressure not exceeding 0,5 bar – Design and construction*

EN 13445-2, *Unfired pressure vessels – Part 2: Materials*

EN 13445-3:2014, *Unfired pressure vessels – Part 3: Design*

EN 13445-4, *Unfired pressure vessels – Part 4: Fabrication*

EN 13445-8, *Unfired pressure vessels – Part 8: Additional requirements for pressure vessels of aluminium and aluminium alloys*

EN ISO 3834-1, *Quality requirements for fusion welding of metallic materials – Part 1: Criteria for the selection of the appropriate level of quality requirements (ISO 3834-1)*

EN ISO 3834-2, *Quality requirements for fusion welding of metallic materials – Part 2: Comprehensive quality requirements (ISO 3834-2)*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-