

SVENSK STANDARD

SS-EN 12285-3:2019

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**Fabrikstillverkade cisterner av stål –
Del 3: Horisontella, cylindriska enkel- och dubbelmantlade
cisterner för förvaring i mark av brandfarliga och icke
brandfarliga vattenförorenande vätskor för uppvärmning och
kylning av byggnader**

**Workshop fabricated steel tanks –
Part 3: Horizontal cylindrical single skin and double skin tanks
for the underground storage of flammable and nonflammable
water polluting liquids for heating and cooling of buildings**

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Europastandarden EN 12285-3:2019 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 12285-3:2019.

Denna standard ersätter SS-EN 12285-1, utgåva 1.

The European Standard EN 12285-3:2019 has the status of a Swedish Standard. This document contains the official version of EN 12285-3:2019.

This standard supersedes the SS-EN 12285-1, edition 1.

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EUROPEAN STANDARD

EN 12285-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2019

ICS 13.300; 23.020.10

Supersedes EN 12285-1:2003

English Version

Workshop fabricated steel tanks - Part 3: Horizontal cylindrical single skin and double skin tanks for the underground storage of flammable and nonflammable water polluting liquids for heating and cooling of buildings

Réservoirs en acier fabriqués en atelier - Partie 3 :
Réservoirs horizontaux cylindriques à simple et double
paroi pour le stockage enterré de liquides
inflammables et non inflammables polluant l'eau pour
le chauffage et le refroidissement des bâtiments

Werksgefertigte Tanks aus Stahl - Teil 3: Liegende
zylindrische ein- und doppelwandige Tanks zur
unterirdischen Lagerung von brennbaren und
nichtbrennbaren wassergefährdenden Flüssigkeiten,
die für das Heizen und Kühlen von Gebäuden
vorgesehen sind

This European Standard was approved by CEN on 14 May 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

SS-EN 12285-3:2019 (E)

Contents	Page
European foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms, definitions, symbols and abbreviations	6
3.1 Terms and definitions	6
3.2 Symbols and abbreviations	8
4 Product characteristics	9
4.1 General.....	9
4.2 Manufacturing.....	9
4.2.1 Qualification of the company and welding qualification of the personnel	9
4.2.2 Types of joints	9
4.2.3 Shell plate arrangement	11
4.2.4 Consumables.....	12
4.2.5 Interstitial space.....	12
4.3 Load bearing capacity.....	12
4.4 Additional requirements.....	12
4.4.1 Manways and inspection covers	12
4.4.2 Structural bolts	14
4.4.3 Tank fittings, pipes and nozzles.....	14
4.4.4 Lifting lugs	14
4.5 Mechanical resistance and stability	14
4.5.1 Materials for shell, dished ends and manways.....	14
4.5.2 Wall thickness	14
4.5.3 Stiffening resistance.....	16
4.5.4 Design of Stiffening Rings.....	17
4.6 Internal pressure	18
4.7 Electrostatic behaviour (for fuel networks).....	18
4.8 Tightness (gas and liquid).....	18
4.9 Release of dangerous substances.....	18
4.10 Durability	18
4.11 Crushing resistance	19
5 Testing, assessment and sampling methods	19
5.1 Mechanical resistance and stability	19
5.1.1 Materials for shell, dished ends and manways.....	19
5.1.2 Wall thickness	19
5.1.3 Welding.....	19
5.1.4 Stiffening resistance.....	19
5.1.5 Strength test.....	19
5.2 Load-bearing capacity	19
5.3 Electrostatic behaviour (for fuel networks).....	20
5.4 Tightness (gas and liquid).....	20
5.5 Crushing resistance	20
5.6 Testing of additional requirements.....	20
5.6.1 Manways and inspection covers	20

5.6.2	Structural bolts.....	20
5.6.3	Tank fittings, pipes and nozzles	20
5.6.4	Lifting lugs.....	20
5.7	Durability.....	20
6	Assessment and verification of constancy of performance (AVCP).....	21
6.1	General	21
6.2	Type testing	21
6.2.1	General	21
6.2.2	Test samples, testing and compliance criteria.....	22
6.2.3	Test reports	23
6.3	Factory production control (FPC).....	23
6.3.1	General	23
6.3.2	Requirements.....	24
6.3.3	Product specific requirements	26
6.3.4	Procedure for modifications.....	27
6.3.5	One-off products, pre-production products (e.g. prototypes) and products produced in very low quantity	27
7	Classification and designation	28
8	Marking and labelling	28
8.1	Marking of the tank.....	28
8.2	Documentation	28
9	Environmental aspects.....	28
	Annex A (informative) Environmental aspects.....	29
	Bibliography	31

SS-EN 12285-3:2019 (E)

European foreword

This document (EN 12285-3:2019) has been prepared by Technical Committee CEN/TC 265 “Metallic tanks for the storage of liquids”, the secretariat of which is held by BSI.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by month October 2019, and conflicting national standards shall be withdrawn at the latest by January 2021.

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, together with EN 12285-1:2018, supersedes EN 12285-1:2003.

Compared to EN 12285-1:2003, this documentt has been restructured as follows:

- Old Clause 3 Terms and definitions has been combined with old Clause 4 Symbols and abbreviations.
- Old Clause 5 Designation and purchaser's specification has been combined with new Clause 7 Classification and designation.
- Old Clause 6 Materials, Clause 7 Design, Clause 8 Fabrication and Clause 10 Handling and installation have been replaced by new Clause 4 Product characteristics.
- Old Clause 9 Testing has now become Clause 5 Testing, assessment and sampling methods.
- Old Clause 11 Marking of the tank and manufacturer's statement has now been combined with new Clause 8 Marking, labelling and packaging.

In addition, EN 12285-3:2019 includes a new clause as follows:

- Clause 6 Assessment and verification of constancy of performance (AVCP)

Annex A provides guidance on environmental aspects. For liquid-material combinations to be chosen, further information is given in EN 12285-1:2018, Annex B.

This European Standard *Workshop fabricated steel tanks* consists of 3 parts:

- *Part 1: Horizontal cylindrical single skin and double skin tanks for the underground storage of flammable and nonflammable water polluting liquids other than for heating and cooling of buildings*
- *Part 2: Horizontal cylindrical single skin and double skin tanks for the aboveground storage of flammable and non-flammable water polluting liquids*
- *Part 3: Horizontal cylindrical single skin and double skin tanks for the underground storage of flammable and nonflammable water polluting liquids for heating and cooling of buildings*

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this document: 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.

1 Scope

This document specifies the product characteristics and test/assessment methods for workshop fabricated cylindrical, horizontal steel tanks, single (type S) and double skin (type D) intended to be used for the underground storage of water polluting liquids (both flammable and non-flammable), specifically used for storage and/or supply of fuel for building heating/cooling systems, and of hot or cold water not intended for human consumption at normal ambient temperature conditions (-20 °C to $+50\text{ °C}$) within the following limits:

- from 800 mm up to 3000 mm nominal diameter and;
- up to a maximum overall length of 6 times the nominal diameter;
- for liquids with a maximum density of up to 1,1 kg/l and;
- with an operating pressure (P_o) of maximum 50 kPa (0,5 bar(g)) and minimum -5 kPa (-50 mbar(g)) and;
- for double skin tanks with a vacuum leak detection system where the kinematic viscosity does not exceed $5 \times 10^{-3}\text{ m}^2/\text{s}$.

Two tank types are distinguished:

- Type S: Single skin;
- Type D: Double skin.

Tanks designed to this document allow for an earth cover of up to 1,5 m. If there are imposed traffic loads or a greater earth cover, calculation will occur.

This document is not applicable to tanks installed in industrial processes or in petrol stations, nor to loads and special measures necessary in areas subject to risk of earthquakes and/or to flooding.

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 1090-2:2008+A1:2011, *Execution of steel structures and aluminium structures - Part 2: Technical requirements for steel structures*

EN 10025-2:2004, *Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels*

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 13160-1, *Leak detection systems - Part 1: General Principles*

EN 13160-2, *Leak detection systems - Part 2: Requirements and test/assessment methods for pressure and vacuum systems*

EN 13160-3, *Leak detection systems - Part 3: Requirements and test/assessment methods for liquid systems for tanks*

SS-EN 12285-3:2019 (E)

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs with specified property classes - Coarse thread and fine pitch thread (ISO 898-1)*

EN ISO 14731, *Welding coordination - Tasks and responsibilities (ISO 14731)*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding (ISO 15609-1)*

EN ISO 15614-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure test - Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1)*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1.1

tank

workshop fabricated cylindrical containment for the storage of liquids

Note 1 to entry: Tanks are made of steel plates, equipped with dished ends and consist of one or more compartments.

3.1.2

underground tank

tank which is totally or partially imbedded in the ground

3.1.3

compartment

single fluid storage space within a tank

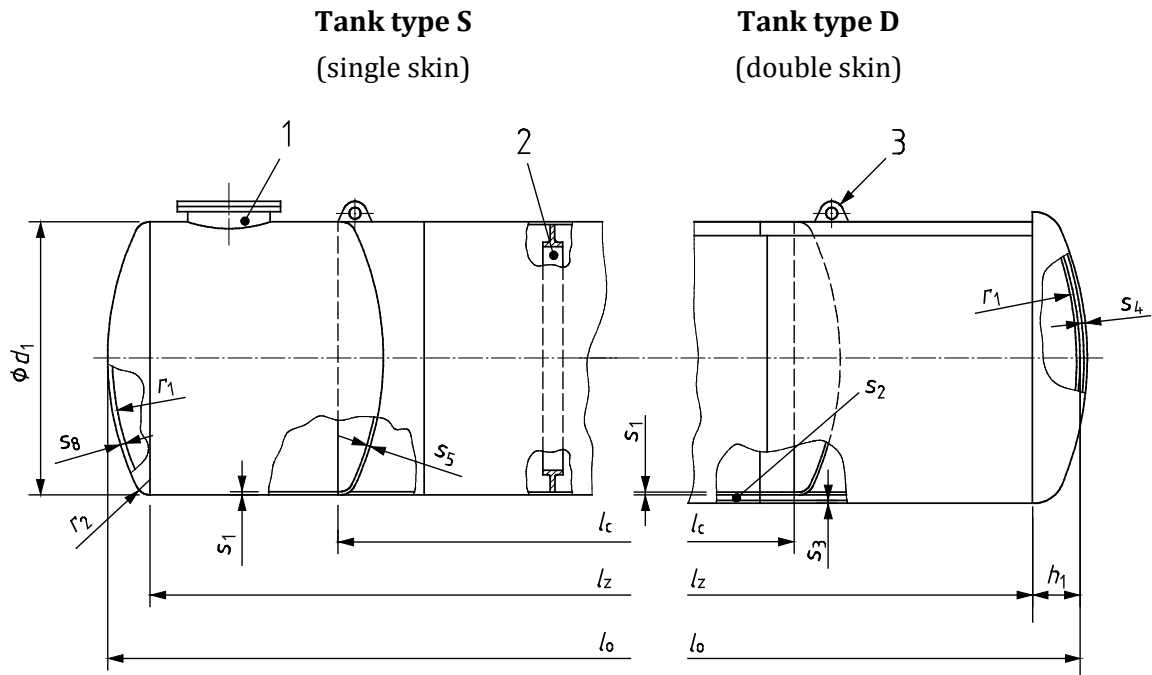
3.1.4

single skin tank

impermeable containment consisting of a tank of single containment

Note 1 to entry: A single skin tank also constitutes the inner skin of a double skin tank.

Note 2 to entry: See Figure 1.



Key

- 1 for manway detail, see Figure 3
- 2 for example for stiffening ring, see Figure 4
- 3 lifting lug

Figure 1 — Example of tank symbols

3.1.5

double skin tank

impermeable self contained tank with outer skin welded around the inner tank

Note 1 to entry: See Figure 1.

3.1.6

operating pressure

p_o

pressure bar (g) inside the tank above the liquid during operating conditions

3.1.7

prototype tank test pressure

p_{t1}

pressure bar (g) to which the tank or compartment is subjected for testing

3.1.8

prototype interstitial space test pressure

p_{t2}

pressure bar (g) to which the interstitial space between the skins is subjected for testing

Note 1 to entry: Only applicable for double skin tanks.