SLOVENSKI STANDARD
SIST EN 1432:2000

01-december-2000

Swap bodies - Swap tanks - Dimensions, requirements, test methods, operation conditions

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Wechselbehälter - Wechseltanks - Maße, Anforderungen, Prüfverfahren, Betriebsbedingungen

Caisses mobiles - Caisses mobiles citernes - Dimensions, prescriptions, méthodes d'essai, conditions d'exploitation

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55.180.10 Veļ namenski kontejnerji General purpose containers

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English version

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 119 "Swap bodies for combined goods transport", 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of an identical text or by endorsement, at the latest by November 1997, and conflicting national standards shall be withdrawn at the latest by November 1997.

At the 6th meeting of CEN/TC 119 in Frankfurt/M. in July 1993, the basic decisions for publication of a Draft European Standard had been taken. At that meeting, delegations from the following countries participated: Germany, The Netherlands, Norway, United Kingdom. The following organization contributed to the preparation of the standard: International Union of Railways.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Swap tanks are employed for the exchange of goods and are suitable for transportation by road, rail and Ro/Ro ferry services including interchanges between these modes of transportation.

Swap tanks certified according to this European Standard have a base frame which can be secured by twist locks or pins of rail and road vehicles complying to the relevant requirements of ISO 668 "Series 1 freight containers - Classification, dimensions and ratings". Their maximum external dimensions and ratings have been determined by international and national vehicle dimensions allowed for road and rail traffic. They are designed for lifting and handling in a loaded condition by grappler arms and other safe methods, but need not be stackable.

1 Scope

This Standard specifies the main dimensional and design characteristics, ratings, test methods, and operational requirements of swap tanks to be used within domestic and international multimodal traffic by road, rail, short sea, inland waterways, Ro/Ro, or ferry transport.

Swap tanks are not intended for intercontinental deep-sea traffic.

Except where otherwise stated, the requirements of this European Standard are minima for design and maxima for operation.

Besides the requirements of this European Standard, additional (European) safety and transport requirements can apply. Swap tanks to be used for the carriage of dangerous goods are subject to national and international requirements as applied by the competent authorities.

NOTE: International requirements are, for example:
- for the transportation of dangerous goods: ADR, RID, IMO/IMDG, UNMM "Orange book",
- for the transportation of perishable goods: ATP,
- for safety and customs conventions: CCC, CSC, TIR.

(see Annex A).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 283	Swap bodies - Testing
EN 284:1992	Swap bodies - Swap bodies of class C - Dimensions and general requirements
EN 45 001	General criteria for the operation of testing laboratories
EN 45 002	General criteria for the assessment of testing laboratories
EN 452:1995	Swap bodies - Swap bodies of Class A - Dimensions and general requirements
ISO 1161:1984	Series 1 freight containers - Corner fittings- Specification
ISO 1496-1:1990	Series 1 freight containers - Specification and testing - Part 1: General cargo containers for general purposes
ISO 1496-3:1995	Series 1 freight containers - Specification and testing - Part 3: Tank containers for liquids, gases and pressurized dry bulk

ISO 9669:1990	Series 1 freight containers - Interface connections for tank containers
ISO 6346:1995	Freight containers - Coding, identification and marking
UIC 592-2:1994*)	Large containers for land transport - Technical conditions
UIC 592-4:1985*)	Swap bodies which can be handled by grabs - Technical conditions
UIC 596-6:1991*)	Traffic of road vehicles in wagons; Technical organisation - Conditions for coding load units in combined transport and combined transport lines

3 Definitions and abbreviations

For the purposes of this standard, the following definitions apply:

3.1 Abbreviations

D dangerous goods
ND non-dangerous goods
g 9,81 m/s²
G acceleration specified in this European Standard (see 10.7.2)
G_1 acceleration to be measured during the tests
R_1 maximum gross mass of the swap tank during the tests

3.2 Swap tank

Article of transport equipment for the intermodal carriage of non-dangerous or dangerous liquids, gases, and dry bulk.

3.3 Tank

The vessel and associated piping and fittings which are designed to contain the cargo carried.

3.4 Framework

The tank mounting and all load-bearing elements which transfer static and dynamic forces arising out of the lifting, handling, securing, and transport of the swap tank as a whole.

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*) Can be obtained: UIC; 16, Rue Jean Rey; F-75015 Paris

3.5 Compartment

Any fluid-tight section of the tank formed by the shell, ends, or bulk heads.

NOTE: Baffles, surge plates, or other perforated plates do not form tank compartments within the meaning of this definition.

3.6 Test pressure[1)]

The gauge pressure at which the tank is tested.

3.7 Maximum allowable working pressure[1)]

The highest pressure assigned by a competent authority to a particular tank, above which that tank is not intended to be operated.

3.8 Liquid

A fluid substance having a vapour pressure (absolute) not greater then 300 kPa[2)] at 50°C.

3.9 Gas

A fluid substance having a vapour pressure (absolute) greater than 300 kPa[2)] at 50°C, or with a critical temperature lower than 50°C, or as otherwise defined by the competent authority.

3.10 Dry bulk

Assemblies of separate solid particles normally substantially in contact with one another which are - or can be rendered - capable of fluid flow.

3.11 Dangerous goods

Those substances classified as dangerous by the United Nations Committee of experts on the transport of dangerous goods or by the competent authority as defined in 3.12.

3.12 Competent authority

The authority or authorities designated as such for the approval of swap tanks for the transport of dangerous materials in each country and in each specific case by the government concerned.

3.13 Recognized inspection agency

An adequately qualified expert body recognized as such for the certification and inspection of swap tanks by the parties involved.

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1) Pressure terminology see EN 764

2) 300 kPa = 3 bar

3.14 Manufacturer's expert

Person authorized by the manufacturer and customer to witness tests not requiring a competent authority. The manufacturer's expert is not connected in any way to design and/or production in any of the manufacturer's facilities.

3.15 Rating R

The maximum gross mass of the swap tank as given in table 1.

3.16 Tare mass T

The mass of an empty swap tank in its operational condition.

3.17 Payload P

The difference remaining after substracting tare mass T from rating R: P = R - T.

NOTE 1: Load

"Load" - when used to describe a quantity to which units (R, T, P) can be ascribed - implies mass. The swap tank rating R and its tare mass T are by definition in units of mass.

NOTE 2: Loadings

Loadings imply forces.
Where test requirements are based on the gravitational forces derived from mass values for R or T, these forces are indicated Rg or Tg.

4 Dimensions and ratings

The external dimensions, tolerances and ratings (R) of the swap tanks covered by this standard are those specified in figure 1 and table 1.

Dimensions in millimeters

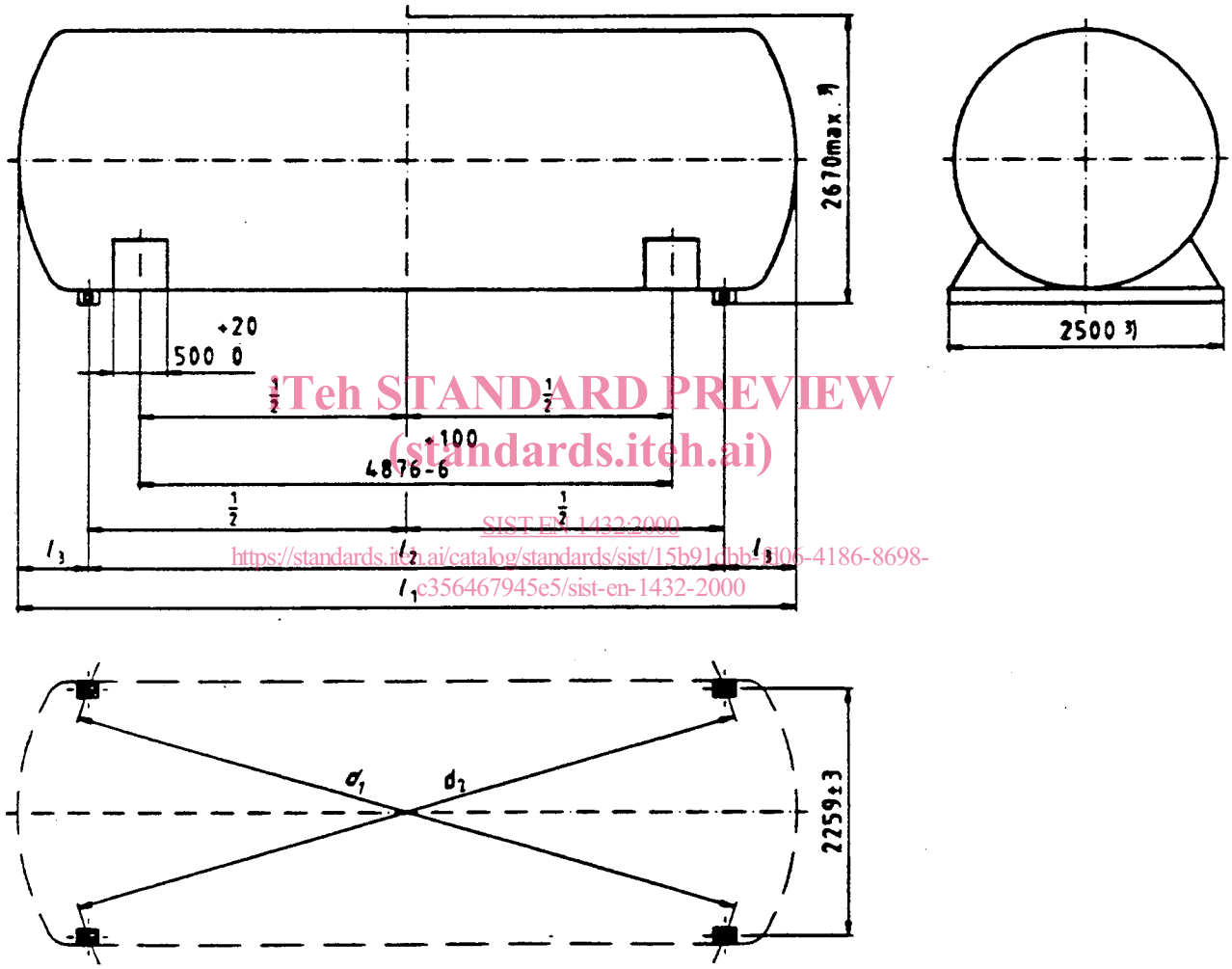

Figure 1: Dimensions for swap tanks

3) See Annex E

Table 1: Swap tank dimensions and ratings

Dimensions in millimeters

designation[1]	l_1[2] max.	l_2	l_3 (for indication only)	$d_1 - d_2$ or $d_2 - d_1$ max.	R max.
C 605 L C 715 L	6 058 7 150	5 853±3	102,5 648,5	13	16 t
C 605 H C 715 H	6 058 7 150		102,5 648,5		34 t
B 912	9 125	8 918±4	103,5	16	
A 1219	12 192	11 985±4	103,5	19	

1) H Heavy
L Light (with mandatory steering tunnel and additional supporting legs (see 8.2.4))
2) see Annex E

5 Requirements

5.1 General

Due regard should be given to potential problems which can arise from conditions such as low ambient temperature, corrosive atmospheres, the possibility of uncontrolled release of dangerous cargo in fire, traffic conditions in tunnels, etc.

5.2 Design loadings

The swap tank shall be designed to withstand the effects of inertia of the tank contents resulting from handling, stacking and transportation.
For design purposes these effects may be taken to be equivalent to the design loadings according to table 2 which apply to swap tanks as structurally complete units.

The ability of the swap tank to withstand these specified design loadings shall be established by test or calculation according to the decision of the competent authority or the recognized inspection agency.