EESTI STANDARD EVS-EN 12573-1:2001

Welded static non-pressurised thermoplastic tanks - Part 1: General principles

EESTI STANDARDIKESKUS

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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12573-1:2001 sisaldab Euroopa standardi EN 12573-1:2000 ingliskeelset teksti.	This Estonian standard EVS-EN 12573-1:2001 consists of the English text of the European standard EN 12573-1:2000.
Standard on kinnitatud Eesti Standardikeskuse 16.02.2001 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 16.02.2001 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

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English version

Welded static non-pressurised thermoplastic tanks - Part 1: General principles

Cuves statiques soudées en matières thermoplastiques sans pression - Partie 1: Principes généraux

Geschweißte ortsfeste drucklose Behälter (Tanks) aus Thermoplasten - Teil 1: Allgemeine Grundsätze

This European Standard was approved by CEN on 14 February 2000.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 266 "Thermoplastic static tanks", the secretariat of which is held by BSI.

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 March 2001, and conflicting national standards shall be withdrawn at the latest by March 2001.

The primary design calculations are derived from EN 1778 "Characteristic values for welded thermoplastic constructions – Determination of allowable stresses and moduli for design of thermoplastic equipment". Safety factors have been defined for four categories of tank as detailed in 4.2.

EN 12573 "Welded static non-pressurised thermoplastic tanks" consists of:

- Part 1: General principles
- Part 2: Calculation of vertical cylindrical tanks
- Part 3: Design and calculation for single skin rectangular tanks
- Part 4: Design and calculation of flanged joints

This standard is intended to be used as part of a certification scheme covered by EN ISO 9001 including items such as the approval testing of welders according to prEN 13067.

Additional to the requirements of this standard, it is necessary to establish requirements concerning the inspection of fabrication, the tightness test, frequency of tests and the type of certificate in accordance with EN ISO 9001.

The informative annex A is a questionnaire for the purchaser on conditions of service for a welded static non-pressurised thermoplastic tank.

The informative annex B gives examples of construction details for the design of welded joints.

The performance of thermoplastic tanks is also dependent on their transport and site installation and recommendations in these areas are given in the informative annex C.

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.

1 Scope

This standard specifies general principles for welded static non-pressurised thermoplastic tanks. It applies to work shop and site fabrications.

The standard covers tanks with a capacity of 0,45 m^3 (450 litres) and above.

Tanks which comply with the requirements of this standard are not intended to withstand internal pressure or vacuum other than that which may occur during the transfer of fluids (including gases) in their normal operation.

This standard applies to tanks fabricated in the following thermoplastics:

Polyethylene (PE)

Polypropylene (PP)
Poly (vinyl chloride) (PVC)
Poly (vinylidene fluoride) (PVDF)

NOTE: Design data for these materials is given in EN 1778.

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 1778	Characteristic values for welded thermoplatstic constructions – Determination of allowable stresses and moduli for design of thermoplastic equipment
prEN 13067	Plastics welding personnel - Approval testing of welders - Thermoplastics welded assemblies
EN ISO 9001	Quality systems - Model for quality assurance in design/development, production, installation and servicing (ISO 9001:1994)

3 Definitions

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

3.1 Brimful capacity

The volume of water held by the tank filled through the filling orifice to the point of overflowing.

3.2 Maximum filling capacity

A value of 95 % of the brimful capacity.

4 Design requirements

4.1 General

The manufacturer shall determine from the purchaser all factors relevant to the design of the tank. A recommended enquiry form for this purpose is given in annex A.

4.2 Safety factor

In the design calculation, an overall safety factor (S) for the tank shall be selected and agreed between the contracting partners. There are four categories of tank:

Category 2,0 (corresponding to a safety factor 2,0)
Category 1,7 (corresponding to a safety factor 1,7)
Category 1,5 (corresponding to a safety factor 1,5)
Category 1,3 (corresponding to a safety factor 1,3)

4.3 Material compatibility