NA to
CYS EN
1993-4-2:2007
(Including
A1:2017 and
AC:2009)

NATIONAL ANNEX TO CYS EN 1993-4-2:2007 (Includig A1:2017 and AC:2009)

Eurocode 3: Design of steel structures

Part 4-2: Tanks

CYPRUS ORGANISATION FOR STANDARDISATION

NATIONAL ANNEX

TO

CYS EN 1993-4-2:2007+A1:2017+AC:2009

Eurocode 3: Design of steel structures

Part 4-2: Tanks

This National Annex has been approved by the Board of Directors of the Cyprus Organisation for Standardisation (CYS) on 14.06.2019.

INTRODUCTION

This National Annex has been prepared by the CYS TC 18 National Standardisation Technical Committee of the Cyprus Organisation of Standardisation.

NA 1 SCOPE

This National Annex is to be used together with CYS EN 1993-4-2:2007+A1:2017+AC:2009. Any reference in the rest of this document to CYS EN 1993-4-2:2007 means the above document.

This National Annex gives:

(a) Nationally determined parameters for the following clauses of CYS EN 1993-4-2:2007 where National choice is allowed (see Section NA 2)

- 2.2 (1)
- 2.2 (3)
- 2.9.2.1 (1)P
- 2.9.2.1 (2)P
- 2.9.2.1 (3)P
- 2.9.2.2 (3)P
- 2.9.3 (2)
- 3.3 (3)
- 4.1.4 (3)

(b) References to non-contradictory complementary information to assist the user to apply CYS EN 1993-4-2:2007. In this National Annex such information is provided for the following clauses in CYS EN 1993-4-2:2007 (see Section NA 3)

- None

NA 2 NATIONALLY DETERMINED PARAMETERS

NA 2.1 Clause 2.2 (1) Reliability differentiation

No consequence classes for tanks are defined as a function of the location, type of stored fluid and loading, the structural form, size and operational aspects.

NA 2.2 Clause 2.2 (3) Reliability differentiation

Table 2.1 gives values for the classification based on the size, structural form and stored contents into Consequence Classes when all other parameters result in medium consequences, see EN 1990:2002, B.3.1.

Table 2.1 a) —Consequence Class definitions depending on contents, size and structural form

Consequence Class	Design Situations
Consequence Class 3	a) Tanks storing liquids or liquefied gases with toxic or explosive potential; b) All flat-bottomed tanks used to store fluids at or near the top of a building; c) All pedestal tanks with centroidal height $H_g \geq H_{ga}$ (see Fig. 2.1b); d) Ground-supported water tanks with parameter U in the range $U > U_{3a}$; e) Ground-supported tanks storing water-polluting liquids with parameter U in the range $U > U_{3b}$; f) Ground-supported tanks storing flammable liquids with parameter U in the range $U > U_{3c}$. Emergency loadings should be taken into account for these structures where necessary, see A.2.14.
Consequence Class 2	a) All pedestal tanks not in Consequence Class 3; b) Ground-supported water tanks with parameter U in the range $U_{2a} < U \leq U_{3a}$; c) Ground-supported tanks storing water-polluting liquids with parameter U in the range $U_{2b} < U \leq U_{3b}$; d) Ground-supported tanks storing flammable liquids with parameter U in the range $U_{2c} < U \leq U_{3c}$.
Consequence Class 1	All other tanks within the scope of this standard.

NOTE 1 The values for class boundaries are as follows:

Table 2.1 b) — Recommended values for class boundaries

Class Boundary	Recommended Value
H_{ga}	30 m
U_{3a}	27 m
U_{3b}	24 m
U_{3c}	15 m
U_{2a}	18 m
U_{2b}	15 m
U_{2c}	10 m

NOTE 2 For the classification by Action Assessment Classes, see EN 1991-4.

NA 2.3 Clause 2.9.2.1 (1)P Partial factors for actions on tanks

Table 2.1 (CYS) provides the partial factors γ_F.

NA 2.4 Clause 2.9.2.1 (2)P Partial factors for actions on tanks

Table 2.1 (CYS) provides the partial factors γ_F.

NA 2.5 Clause 2.9.2.1 (3)P Partial factors for actions on tanks

Table 2.1 (CYS) provides the partial factors γ_F.

Table 2.1 (CYS): Values for the partial factors for actions on tanks for persistent and transient design situations and for accidental design situation

design situation	liquid type	recommended values for γ_F in case of variable actions from liquids	recommended values for γ_F in case of permanent actions
liquid induced loads during operation	toxic, explosive or dangerous liquids	1,40	1,35
	flammable liquids	1,30	1,35
	other liquids	1,20	1,35
liquid induced loads during test	all liquids	1,00	1,35
accidental actions	all liquids	1,00	

NA 2.6 Clause 2.9.2.2 (3)P Partial factors for resistances

Table 2.2 (CYS) provides the numerical values of partial factors γ_{Mi} for tanks.

Table 2.2 (CYS): Numerical values for the partial factors for resistance

$\gamma_{M0} = 1,00$	$\gamma_{M1} = 1,10$	$\gamma_{M2} = 1,25$
$\gamma_{M4} = 1,00$	$\gamma_{M5} = 1,25$	$\gamma_{M6} = 1,10$

NA 2.7 Clause 2.9.3 (2) Serviceability limit states

The value for the partial factor for serviceability γ_{Mser} is specified as $\gamma_{Mser} = 1$.

NA 2.8 Clause 3.3 (3) Steels for pressure purposes

No further information is provided.

NA 2.9 Clause 4.1.4 (3) Fatigue

The value for the number N_f of cycles is specified as $N_f = 10000$.

NA 3 REFERENCES TO NON-CONTRADICTORY COMPLEMENTARY INFORMATION

None

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