

NATIONAL ANNEX

TO

***CYS EN 1991-1-7:2006
(Including A1:2014
and AC:2010)***

***Eurocode 1: Actions
on structures***

***Part 1-7: General
Actions – Accidental
actions***



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**CYS EN 1991-1-7:2006
(Including A1:2014+AC:2010)**

Eurocode 1: Actions on structures

Part 1-7: General Actions – Accidental actions

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INTRODUCTION

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

NA 1 SCOPE

This National Annex is to be used together with CYS EN 1991-1-7:2006 including A1:2014+AC:2010. Any reference in the rest of this text to CYS EN 1991-1-7:2006 means the above document.

This National Annex gives:

A) Nationally determined parameters for the following clauses of CYS EN 1991-1-7:2006 where National choice is allowed (see Section NA 2)

Paragraph	Item
2 (2)	Classification of accidental actions
3.1(2)	Strategies for accidental design situations
3.2(1)	Level of risk
3.3(2)	Notional accidental action
3.3(2)	Limit of local failure
3.3(2)	Choice of strategies
3.4(1)	Consequences classes
3.4(2)	Design approaches
4.1(1)	Definition of lightweight structures
4.1(1)	Transmission of impact forces to foundations
4.3.1(1)	Values of vehicle impact forces
4.3.1(1)	Impact force as a function of the distance from traffic lanes
4.3.1(1)	Types or elements of structure subject to vehicular collision
4.3.1(2)	Alternative impact rules
4.3.1(3)	Conditions of impact from road vehicles
4.3.2(1)	Clearances and protection measures and design values
4.3.2(1)	Reduction factor r_F
4.3.2(1)	Impact actions on underside of bridge decks
4.3.2(2)	Use of F_{dy}
4.3.2(3)	Dimension and position of impact areas
4.4(1)	Value of impact forces from forklift trucks
4.5(1)	Type of rail traffic
4.5.1.2(1)	Structures to be included in each exposure class
4.5.1.2(1)	Classification of temporary structures and auxiliary construction works
4.5.1.4(1)	Impact forces from derailed traffic
4.5.1.4(2)	Reduction of impact forces
4.5.1.4(3)	Point of application of impact forces

4.5.1.4(4)	Equivalent static forces
4.5.1.4(5)	Impact forces for speeds greater than 120 km/h
4.5.1.5(1)	Requirements for Class B structures
4.5.2(1)	Areas beyond track ends
4.5.2(4)	Impact forces on end walls
4.6.1(3)	Classification of ship impacts
4.6.2(1)	Values of frontal and lateral forces from ships
4.6.2(2)	Friction coefficients
4.6.2(3)	Application area of impact
4.6.2(4)	Impact forces on bridge decks from ships
4.6.3(1)	Dynamic impact forces from seagoing ships
4.6.3(3)	Friction coefficients
4.6.3(4)P	Dimension and position of impact areas
4.6.3(5)	Forces on superstructure
5.3 (1)P	Procedures for internal explosion
A.4 (1)	Details of effective anchorage

b) Decisions on the use of the Informative Annexes A, B, C and D (see Section NA 3)

c) References to non-contradictory complementary information to assist the user to apply CYS EN 1991-1-7:2006. In this National Annex such information is provided for the following clauses in CYS EN 1991-1-7:2006 (see Section NA 4)

NA 2 NATIONALLY DETERMINED PARAMETERS

NA 2.1 Clause 2 (2) Classification of accidental actions

No further information is provided.

NA 2.2 Clause 3.1 (2) Strategies for accidental design situations

No further information is provided.

NA 2.3 Clause 3.2 (1) Level of risk

No further information is provided.

NA 2.4 Clause 3.3 (2) Notional accidental action

The recommended model for buildings, which is a uniformly distributed load with a value of 34 kN/m², shall be used for designing key elements. No provisions are specified for other types of structures.

NA 2.5 Clause 3.3 (2) Limit of local failure

No further information is provided. A classification of consequences classes relating to building is provided in table A1: Categorisation of Consequences classes of CYS EN 1991-1-7:2006.

NA 2.6 Clause 3.3 (2) Choice of strategies

No further information is provided.

NA 2.7 Clause 3.4 (1) Consequences classes

No further information is provided.

NA 2.8 Clause 3.4 (2) Design approaches

No further information is provided.

NA 2.9 Clause 4.1 (1) Definition of lightweight structures

No further information is provided.

NA 2.10 Clause 4.1 (1) Transmission of impact forces to foundations

No further information is provided.

NA 2.11 Clause 4.3.1 (1) Values of vehicle impact forces

No further information is provided.

NA 2.12 Clause 4.3.1 (1) Impact force as a function of the distance from traffic lanes

No further information is provided.

NA 2.13 Clause 4.3.1 (1) Types or elements of structure subject to vehicular collision

No further information is provided.

NA 2.14 Clause 4.3.1 (2) Alternative impact rules

F_{dx} is defined not to act simultaneously with F_{dy} .

NA 2.15 Clause 4.3.1 (3) Conditions of impact from road vehicles

The conditions of impact from road vehicles recommended in the note of clause 4.3.1 (3) are adopted.

NA 2.16 Clause 4.3.2 (1) Clearances and protection measures and design values

The value for adequate clearance to avoid impact on superstructures shall be 6,0 m. No further information is provided on design values for actions due to impact and protection measures to avoid impact.

NA 2.17 Clause 4.3.2 (1) Reduction factor r_F

The recommended values of r_F , h_0 and h_1 given in Figure 4.2 shall be applied.

NA 2.18 Clause 4.3.2 (1) Impact actions on underside of bridge decks

Impact loads on the underside surfaces of bridge decks shall be taken into account with an upward inclination of 10°. See also Figure 4.3 of CYS EN 1991-1-7:2006.

NA 2.19 Clause 4.3.2 (2) Use of F_{dy}

F_{dy} shall not to act simultaneously with F_{dx} , as recommended.

NA 2.20 Clause 4.3.2 (3) Dimension and position of impact areas

The applicable area of the impact force F is a square with sides of 0,25 m length, as recommended.

NA 2.21 Clause 4.4 (1) Value of impact forces from forklift trucks

The equivalent static design force F due to impact from forklift trucks should be taken at least as $5W$, where W is the sum of the net weight and hoisting load of a loaded truck (see CYS EN 1991-1-1, Table 6.5), applied at a height of 0,75 m above floor level. The value of F may be determined in accordance with C.2.2, however it should not be taken lower than $5W$.

NA 2.22 Clause 4.5 (1) Type of rail traffic

No further information is provided.

NA 2.23 Clause 4.5.1.2 (1) Structures to be included in each exposure class

No further information is provided.

NA 2.24 Clause 4.5.1.2 (1) Classification of temporary structures and auxiliary construction works

No further information is provided.

NA 2.25 Clause 4.5.1.4 (1) Impact forces from derailed traffic

No further information is provided. Table 4.4 of CYS EN 1991-1-7:2006 shall be applied

NA 2.26 Clause 4.5.1.4 (2) Reduction of impact forces

No further information is provided.

NA 2.27 Clause 4.5.1.4 (3) Point of application of impact forces

The height of 1,8 m above track level for the point of application of F_{dx} and F_{dy} shall be used.

NA 2.28 Clause 4.5.1.4 (4) Equivalent static forces

The value 50% reduction of force shall be applied

NA 2.29 Clause 4.5.1.4 (5) Impact forces for speeds greater than 120 km/h

No further information is provided.

NA 2.30 Clause 4.5.1.5 (1) Requirements for Class B structures

No further information is provided.

NA 2.31 Clause 4.5.2 (1) Areas beyond track ends

No further information is provided.

NA 2.32 Clause 4.5.2 (4) Impact forces on end walls

The recommended force values $F_{dx} = 5\,000$ kN for passenger trains and $F_{dx} = 10\,000$ kN for shunting and marshaling trains shall be used. These forces are applied horizontally and at a level of 1,0 m above track level, as recommended.

NA 2.33 Clause 4.6.1 (3) Classification of ship impacts

No further information is provided.

NA 2.34 Clause 4.6.2 (1) Values of frontal and lateral forces from ships

No further information is provided.

NA 2.35 Clause 4.6.2 (2) Friction coefficients

The recommended value $\mu = 0,4$ for the friction coefficient shall be applied.

NA 2.36 Clause 4.6.2 (3) Application area of impact

No further information is provided.

NA 2.37 Clause 4.6.2 (4) Impact forces on bridge decks from ships

No further information is provided.

NA 2.38 Clause 4.6.3 (1) Dynamic impact forces from seagoing ships

No further information is provided.

NA 2.39 Clause 4.6.3 (3) Friction coefficients

The recommended value $\mu = 0,4$ for the friction coefficient shall be used

NA 2.40 Clause 4.6.3 (4)P Dimension and position of impact areas

The limits on the area of impact from seagoing vessels are $0,05\ell$ for the height and $0,1\ell$ for the width (where ℓ = ship length), shall be applied. The limits on the position of the force in the vertical direction may be taken as being $0,05 \ell$ below to $0,05 \ell$ above the design water levels.

NA 2.41 Clause 4.6.3 (5) Forces on superstructure

No further information is provided.

NA 2.42 Clause 5.3 (1)P Procedures for internal explosion

No further information is provided. The guidance of Annex D to be applied

NA 2.43 Clause A.4 (1) Details of effective anchorage

No further information is provided.

NA 3 DECISION ON USE OF THE INFORMATIVE ANNEXES A, B, C AND D

NA 3.1 Annex A

Annex A may be used.

NA 3.2 Annex B

Annex B may be used.

NA 3.3 Annex C

Annex C may be used.

NA 3.4 Annex D

Annex D may be used.

NA 4 REFERENCES TO NON-CONTRADICTORY COMPLEMENTARY INFORMATION

None

**NA to
CYS EN
1991-1-7:2006
(Including
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