

CYS National Annex to CYS EN 1999-1-3:2007

Eurocode 9: Design of aluminium structures

Part 1-3: Structures susceptible to fatigue

Prepared by
Eurocodes Committee, Scientific and Technical
Chamber of Cyprus under a Ministry of Interior's Programme.



NATIONAL ANNEX

TO

**CYS EN 1999-1-3:2007 Eurocode 9: Design of aluminium
structures**

Part 1-3: Structures susceptible to fatigue

This National Annex has been approved by the Board of Governors of the Cyprus Organisation for Standardisation on 11/06/2010.

INTRODUCTION

This National Annex has been prepared by the Eurocodes Committee of the Technical Chamber of Cyprus which was commissioned by the Ministry of Interior of the Republic of Cyprus

NA 1 SCOPE

This National Annex is to be used together with CYS EN 1999-1-3:2007

This National Annex gives:

- (a) Nationally determined parameters for the following clauses of CYS EN 1999-1-3:2007 where National choice is allowed (see Section NA 2)
- 2.1.1 (1)
 - 2.2.1 (3)
 - 2.3.1 (3)
 - 2.3.2 (6)
 - 2.4 (1)
 - 3 (1)
 - 4 (2)
 - 5.8.1 (1)
 - 5.8.2 (1)
 - 6.1.3 (1)
 - 6.2.1 (2)
 - 6.2.1 (7)
 - 6.2.1 (11)
 - A.3.1 (1)
 - E (5)
 - E (7)
 - I.2.2 (1)
 - I.2.3.2 (1)
 - I.2.4 (1).
- (b) Decisions on the use of the Informative Annexes B, C, D, E, F, G, H, I, J and K (see Section NA 3)
- (c) References to non-contradictory complementary information to assist the user to apply CYS EN 1999-1-3:2007. In this National Annex such information is provided for the following clauses in CYS EN 1999-1-3:2007 (see Section NA 4).

NA 2 NATIONALLY DETERMINED PARAMETERS

NA 2.1 Clause 2.1.1 (1) General

Annex A shall be used.

NA 2.2 Clause 2.2.1 (3) Safe life design

The value of D_{lim} is defined to be $D_{lim} = 1,0$.

NA 2.3 Clause 2.3.1 (3) Source of fatigue loading

No further rules are given for the determination of the fatigue load for cases not covered by a European standard.

NA 2.4 Clause 2.3.2 (6) Derivation of fatigue loading

Values of k_F and k_N are defined to be, $k_F=2$, and $k_N=2$.

NA 2.5 Clause 2.4 (1) Partial factors for fatigue loads

Where the fatigue loads F_{Ek} have been derived in accordance with the requirements of CYS EN 1999-1-3:2007 clauses 2.3.1 (2) and 2.3.2, the partial factor for fatigue loads γ_{Ff} , is specified as $\gamma_{Ff} = 1,0$.

Where fatigue loads have been based on other confidence limits than those in CYS EN 1999-1-3:2007 clause 2.3.2(5), the values for partial factors on loads are given in Table 2.1. (CYS).

Table 2.1 (CYS) — Partial factors γ_{Ff} for intensity and number of cycles in the fatigue load spectrum

k_F	γ_{Ff}	
	$k_N = 0$	$k_N = 2$
0	1,5	1,4
1	1,3	1,2
2	1,1	1,0

NA 2.6 Clause 3 (1) Materials, constituent products and connecting devices

No further data for low strength alloys and tempers is provided.

NA 2.7 Clause 4 (2) Durability

No further information on durability is provided.

NA 2.8 Clause 5.8.1 (1) General

No further information on the use of the nominal stress ranges or modified nominal stress ranges is given.

NA 2.9 Clause 5.8.2 (1) Design value of stress range

No further information for the design value of stress range is provided.

NA 2.10 Clause 6.1.3 (1) Constructional details

The set of categories given in Annex J shall be used. No further construction details are provided.

NA 2.11 Clause 6.2.1 (2) Classified constructional details

The value of the partial factor γ_{Mf} for a specific constructional detail type is specified to be $\gamma_{Mf} = 1,0$.

NA 2.12 Clause 6.2.1 (7) Classified constructional details

No any additional provisions are given.

NA 2.13 Clause 6.2.1 (11) Classified constructional details

The increase in number of categories shall not exceed 2.

NA 2.14 Clause A.3.1 (1) Prerequisites for damage tolerant design

The following conditions ((a) to (d)) for the use of damage tolerant design are specified:

- a) The fatigue crack initiation sites should be on or close to a surface which should be readily accessible in service. The only exception should be where safe alternative load paths are provided and constructional details are designed to ensure that the cracks will be arrested without propagation beyond the first load path.
- b) The procedure in A.2.2 should be applied to determine the inspection frequency and maximum permissible crack size before correction becomes necessary.
- c) Practical inspection methods should be available which should be capable of detecting the cracks and measuring their extent well before they have reached their fracture critical size.
- d) The maintenance manual should specify the information listed in 1.7.3 for each crack location.

NA 2.15 Clause E (5) Adhesively bonded joints

The value of the partial factor γ_{Mf} for specific constructional detail types is specified to be $\gamma_{Mf} = 3,0$.

NA 2.16 Clause E (7) Adhesively bonded joints

No other values are defined.

NA 2.17 Clause I.2.2 (1) Welded material

Fatigue strength values for welded joints of castings are not defined in the National Annex.

NA 2.18 Clause I.2.3.2 (1) Pinned joints

Fatigue strength values for pinned joints of castings are not defined in the National Annex.

NA 2.19 Clause I.2.4 (1) Adhesively bonded castings

Fatigue strength values for adhesively bonded joints in castings are not defined in the National Annex.

NA 3 DECISION ON USE OF THE INFORMATIVE ANNEXES B, C, D, E, F, G, H, I, J and K

NA 3.1 Annex B

Annex B may be used

NA 3.2 Annex C

Annex C may be used

NA 3.3 Annex D

Annex D may be used

NA 3.4 Annex E

Annex E may be used

NA 3.5 Annex F

Annex F may be used

NA 3.6 Annex G

Annex G may be used

NA 3.7 Annex H

Annex H may be used

NA 3.8 Annex I

Annex I may be used

NA 3.9 Annex J

Annex J may be used

NA 3.10 Annex K

Annex K may be used

**NA 4 REFERENCES TO NON-CONTRADICTIONARY COMPLEMENTARY
INFORMATION**

None

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