

# **CYS National Annex to CYS EN 1993-1-3:2006**

## **Eurocode 3:**

### **Design of steel structures**

#### **Part 1-3:**

#### **General rules - Supplementary rules for cold-formed members and sheeting**

·  
·  
·  
·

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



**NATIONAL ANNEX**  
**TO**  
**CYS EN 1993-1-3:2006**  
**Eurocode 3: Design of steel structures**  
**Part1-3: General rules - Supplementary rules for cold-**  
**formed members and sheeting**

**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 in conjunction with CYS EN 1993-1-3:2006.

This National Annex gives:

- (a) Nationally Determined Parameters described in the following clauses of CYS EN 1993-1-3:2006 (see Section NA 2):
- 2 (3)P
  - 2 (5)
  - 3.1 (3) Note 1 and Note 2
  - 3.2.4 (1)
  - 5.3 (4)
  - 8.3 (5)
  - 8.3 (13), Table 8.1
  - 8.3 (13), Table 8.2
  - 8.3 (13), Table 8.3
  - 8.3 (13), Table 8.4
  - 8.4 (5)
  - 8.5.1 (4)
  - 9 (2)
  - 10.1.1 (1)
  - 10.1.4.2 (1)
  - A.1 (1), Note 2
  - A.1 (1), Note 3
  - A.6.4 (4)
  - E (1)
- (b) Decisions on the use of CYS EN 1993-1-3:2006 informative annexes (see Section NA 3)
- (c) References to non-contradictory complementary information to assist the user to apply CYS EN 1993-1-3:2006 (see Section NA 4)

## NA 2 NATIONALLY DETERMINED PARAMETERS

### NA 2.1 Clause 2 (3) P Basis of design

The following recommended values for the partial factors  $\gamma_{Mi}$  for buildings should be used:

$$\gamma_{M0} = 1,00;$$

$$\gamma_{M1} = 1,00;$$

$$\gamma_{M2} = 1,25.$$

## NA 2.2 Clause 2 (5) Basis of design

The recommended value of  $\gamma_{M,ser}=1,00$  should be used.

## NA 2.3 Clause 3.1 (3) Note 1 and Note 2 General

For steel strip less than 3 mm thick conforming to CYS EN 10025, if the width of the original strip is greater than or equal to 600 mm, the characteristic values should be equal to 0,9 times those given in Table 3.1a (CYS).

Examples for other steel materials and products that may conform to the requirements of this standard are given in Table 3.1b (CYS).

**Table 3.1a (CYS): Nominal values of basic yield strength  $f_{yb}$  and ultimate tensile strength  $f_u$**

Type of steel	Standard	Grade	$f_{yb}$ N/mm <sup>2</sup>	$f_u$ N/mm <sup>2</sup>
Hot rolled products of non-alloy structural steels. Part 2: Technical delivery conditions for non alloy structural steels	EN 10025: Part 2	S 235	235	360
		S 275	275	430
		S 355	355	510
Hot-rolled products of structural steels. Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels	EN 10025: Part 3	S 275 N	275	370
		S 355 N	355	470
		S 420 N	420	520
		S 460 N	460	550
		S 275 NL	275	370
		S 355 NL	355	470
		S 420 NL	420	520
Hot-rolled products of structural steels. Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels	EN 10025: Part 4	S 275 M	275	360
		S 355 M	355	450
		S 420 M	420	500
		S 460 M	460	530
		S 275 ML	275	360
		S 355 ML	355	450
		S 420 ML	420	500
S 460 ML	460	530		

**Table 3.1b (CYS): Nominal values of basic yield strength  $f_{yb}$  and ultimate tensile strength  $f_u$**

Cold reduced steel sheet of structural quality	ISO 4997	CR 220	220	300
		CR 250	250	330
		CR 320	320	400
Continuous hot dip zinc coated carbon steel sheet of structural quality	EN 10326	S220GD+Z	220	300
		S250GD+Z	250	330
		S280GD+Z	280	360
		S320GD+Z	320	390
		S350GD+Z	350	420
Hot-rolled flat products made of high yield strength steels for cold forming. Part 2: Delivery conditions for thermomechanically rolled steels	EN 10149: Part 2	S 315 MC	315	390
		S 355 MC	355	430
		S 420 MC	420	480
		S 460 MC	460	520
		S 500 MC	500	550
		S 550 MC	550	600
		S 600 MC	600	650
		S 650 MC	650	700
		S 700 MC	700	750
			EN 10149: Part 3	S 260 NC
S 315 NC	315			430
S 355 NC	355			470
S 420 NC	420			530
Cold-rolled flat products made of high yield strength micro-alloyed steels for cold forming	EN 10268	H240LA	240	340
		H280LA	280	370
		H320LA	320	400
		H360LA	360	430
		H400LA	400	460
Continuously hot-dip coated strip and sheet of steels with higher yield strength for cold forming	EN 10292	H260LAD	240 2)	340 2)
		H300LAD	280 2)	370 2)
		H340LAD	320 2)	400 2)
		H380LAD	360 2)	430 2)
		H420LAD	400 2)	460 2)

Continuously hot-dipped zinc-aluminium (ZA) coated steel strip and sheet	EN 10326	S220GD+ZA S250GD+ZA S280GD+ZA S320GD+ZA S350GD+ZA	220 250 280 320 350	300 330 360 390 420
Continuously hot-dipped aluminium-zinc (AZ) coated steel strip and sheet	EN 10326	S220GD+AZ S250GD+AZ S280GD+AZ S320GD+AZ S350GD+AZ	220 250 280 320 350	300 330 360 390 420
Continuously hot-dipped zinc coated strip and sheet of mild steel for cold forming	EN 10327	DX51D+Z DX52D+Z DX53D+Z	140 1) 140 1) 140 1)	270 1) 270 1) 270 1)

1) Minimum values of the yield strength and ultimate tensile strength are not given in the standard. For all steel grades a minimum value of 140 N/mm<sup>2</sup> for yield strength and 270 N/mm<sup>2</sup> for ultimate tensile strength may be assumed.

2) The yield strength values given in the names of the materials correspond to transversal tension. The values for longitudinal tension are given in the table.

#### **NA 2.4 Clause 3.2.4 (1) Thickness and thickness tolerances**

The following recommended ranges of core thickness  $t_{cor}$  should be used:

- for sheeting and members:  $0,45\text{mm} \leq t_{cor} \leq 15\text{ mm}$

- for connections:  $0,45\text{mm} \leq t_{cor} \leq 4\text{ mm}$ , see 8.1(2) of CYS EN 1993-1-3

#### **NA 2.5 Clause 5.3 (4) Structural modeling for analysis**

The recommended values  $e_0/L = 1/600$  for elastic analysis and  $e_0/L = 1/500$  for plastic analysis should be used for sections assigned to LTB buckling curve a taken from 6.3.2.2 of CYS EN 1993-1-1.

#### **NA 2.6 Clause 8.3 (5) Connections with mechanical fasteners**

The recommended value of  $\gamma_{M2}=1,25$  should be used.

#### **NA 2.7 Clause 8.3 (13), Table 8.1 Connections with mechanical fasteners**

No further information is provided in this National Annex.

#### **NA 2.8 Clause 8.3 (13), Table 8.2 Connections with mechanical fasteners**

No further information is provided in this National Annex.

#### **NA 2.9 Clause 8.3 (13), Table 8.3 Connections with mechanical fasteners**

No further information is provided in this National Annex.

#### **NA 2.10 Clause 8.3 (13), Table 8.4 Connections with mechanical fasteners**

No further information is provided in this National Annex.

#### **NA 2.11 Clause 8.4 (5) Spot welds**

The recommended value of  $\gamma_{M2}=1,25$  should be used.

#### **NA 2.12 Clause 8.5.1 (4) General**

The recommended value of  $\gamma_{M2}=1,25$  should be used.

#### **NA 2.13 Clause 9 (2) Design assisted by testing**

No further information is provided in this National Annex.

#### **NA 2.14 Clause 10.1.1 (1) General**

No further information is provided in this National Annex.

### **NA 2.15 Clause 10.1.4.2 (1) Buckling resistance of free flange**

The value of the reduction factor  $\chi_{LT}$  should be determined from 6.3.2.3 of CYS EN 1993-1-1 using buckling curve b ( $\alpha_{LT}=0,34$  ;  $\bar{\lambda}_{LT,0} = 0,4$  ;  $\beta=0,75$ ) for the relative slenderness  $\bar{\lambda}_{fz}$  given in 10.1.4.2 (2) of CYS EN 1993-1-3.

### **NA 2.16 Clause A.1 (1), Note 2 General**

No further information is provided in this National Annex.

### **NA 2.17 Clause A.1 (1), Note 3 General**

No further information is provided in this National Annex.

### **NA 2.18 Clause A.6.4 (4) Design values**

The values for the partial factors  $\gamma_{Mi}$  should be those chosen in the design by calculation given in section 2 or section 8 of CYS EN 1993-1-3, unless other values result from the use of Annex D of CYS EN 1990.

### **NA 2.19 Clause E (1) Simplified design for purlins**

No further information is provided in this National Annex.

## **NA 3 DECISION ON THE USE OF INFORMATIVE ANNEXES**

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

None



**CYPRUS ORGANISATION FOR STANDARDISATION**

Limassol Avenue and Kosta Anaxagora 30,  
2<sup>nd</sup> & 3<sup>rd</sup> Floor, 2014 Nicosia, Cyprus  
P.O.BOX.16197, 2086 Nicosia, Cyprus  
Tel: +357 22 411411 Fax: +357 22 411511

E-Mail: [cystandards@cys.org.cy](mailto:cystandards@cys.org.cy)

Website: [www.cys.org.cy](http://www.cys.org.cy)

---