

NATIONAL ANNEX
TO
CYS EN 1993-1-12: 2007 Eurocode 3: Design of steel structures
Part 1-12: Additional rules for the extension of EN 1993 up to steel grades S 700

Public Enquiry Draft

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Readers are advised that this is a draft document and subject to change

**Prepared by: Eurocodes Committee
Ministry of Interior / Technical Chamber of Cyprus**

PUBLIC ENQUIRY DRAFT

National Annex to CYS EN 1993-1-12: 2007 Eurocode 3: Design of steel structures
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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 1993-1-12: 2007.

This National Annex gives:

- (a) Nationally determined parameters for the following clauses of CYS EN 1993-1-12: 2007 where National choice is allowed (see Section NA 2):
- 2.1 (3.1(2))
 - 2.1 (3.2.2(1))
 - 2.1 (5.4.3(1))
 - 2.1 (6.2.3(2))
 - 2.8 (4.2(2))
 - 3 (1)
- (b) References to non-contradictory complementary information to assist the user to apply CYS EN 1993-1-12: 2007 (see Section NA 3).

NA 2 NATIONALLY DETERMINED PARAMETERS

NA 2.1 Clause 2.1 (3.1(2)) Additional rules to CYS EN 1993-1-1 - Additional note:

Steel grades greater than S460 up to S700 are specified for general use or for use in specific applications. The recommended grades in Tables 1 and 2 (CYS) of CYS EN 1993-1-12: 2007 and the nominal values that may be used for their yield strengths are specified for general use provided that the rules in this Part 1.12 are followed.

Table 1 (CYS) — Nominal values of yield strength f_y and ultimate tensile strength f_u for hot rolled structural steel

| EN10025-6 Steel grade and qualities | Nominal thickness of the element t mm | | | | | |
|---|---|-------------------------|---------------------------------|-------------------------|----------------------------------|-------------------------|
| | $t \leq 50$ mm | | $50 \text{ mm} < t \leq 100$ mm | | $100 \text{ mm} < t \leq 150$ mm | |
| | f_y N/mm ² | f_u N/mm ² | f_y N/mm ² | f_u N/mm ² | f_y N/mm ² | f_u N/mm ² |
| S 500Q/QL/QL1 | 500 | 590 | 480 | 590 | 440 | 540 |
| S 550Q/QL/QL1 | 550 | 640 | 530 | 640 | 490 | 590 |
| S 620Q/QL/QL1 | 620 | 700 | 580 | 700 | 560 | 650 |
| S 690Q/QL/QL1 | 690 | 770 | 650 | 760 | 630 | 710 |

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Table 2 (CYS) — Nominal values of yield strength f_y and ultimate tensile strength f_u for hot rolled flat products.

| EN 10149-2 ^{a)} | 1,5 ≤ t ≤ 8 mm | | 8 < t ≤ 16 mm | |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | f_y N/mm ² | f_u N/mm ² | f_y N/mm ² | f_u N/mm ² |
| S 500MC | 500 | 550 | 500 | 550 |
| S 550MC | 550 | 600 | 550 | 600 |
| S 600MC | 600 | 650 | 600 | 650 |
| S 650MC | 650 | 700 | 630 | 700 |
| S 700MC | 700 | 750 | 680 | 750 |

^{a)} Verification of the impact energy in accordance with EN 10149-1 Clause 11, Option 5 should be specified.

NA 2.2 Clause 2.1 (3.2.2(1)) Additional rules to CYS EN 1993-1-1 - Additional note:

The recommended limiting values of the ratio f_u/f_y , the elongation at failure and the ultimate strain ϵ_u for steels greater than S460 up to S700 shall be used as follows:

- $f_u/f_y > 1,05$;
- elongation at failure not less than 10 %;
- $\epsilon_u > 15f_y/E$.

NA 2.3 Clause 2.1 (5.4.3(1)) Additional rules to CYS EN 1993-1-1

No additional rules are specified for steels according to Tables 1 and 2 (CYS). Rules for design with FEM are given in Informative Annex C of CYS EN 1993-1-5.

NA 2.4 Clause 2.1 (6.2.3(2)) Additional rules to CYS EN 1993-1-1 – Additional rule:

The recommended value for the partial factor $\gamma_{M12} = \gamma_{M2} = 1,25$ for net section resistance for steels with grades greater than S460 up to S700 for use in equation (6.7a) of CYS EN 1993-1-12: 2007 shall be used.

NA 2.5 Clause 2.8 (4.2(2)) Additional rules to CYS EN 1993-1-8 – Additional rule:

No additional information is provided for the use of undermatched electrodes.

NA 2.6 Clause 3 (1) Additional rules to application parts CYS EN 1993-2 to EN 1993-6

No limit is set for the range of applicable grades of steel for CYS EN 1993-2 to CYS EN1993-6.

NA 3 REFERENCES TO NON-CONTRADICTORY COMPLEMENTARY INFORMATION

None