

**Temporära konstruktioner – Prefabricerade
fasadställningar –
Del 1: Produktkrav**

**Facade scaffolds made of prefabricated
components –
Part 1: Products specifications**

Europastandarden EN 12810-1:2003 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 12810-1:2003.

Denna standard, tillsammans med SS-EN 12811-1:2004, utgåva 1, ersätter SS-HD 1000, utgåva 1.

The European Standard EN 12810-1:2003 has the status of a Swedish Standard. This document contains the official English version of EN 12810-1:2003.

This standard together with SS-EN 12811-1:2004, edition 1, supersedes the Swedish Standard SS-HD 1000, edition 1.

För leverans och användning av ställningar i Sverige gäller de regler som utfärdats av Arbetsmiljöverket/Arbetarskyddsstyrelsen (AFS 1990:12). Även andra regler kan, för vissa arbeten eller vissa moment, inverka på främst användningen av ställningar. Som exempel kan anges föreskrifterna om byggnads- och anläggningsarbete (AFS 1999:3).

Följande gäller i Sverige för de avsnitt i EN 12880-1 där flera alternativ är angivna:

Kap. 4 Classification

och

Kap. 7.1 Completeness of the range of components of the scaffold system

Tillträdesled klass ST eller LS

Kap. 11 Assessment

och

Annex C

Prefabricerade ställningssystem skall typkontrolleras av ackrediterat organ.

Upplysningar om **sakinnehållet** i standarden lämnas av SIS, Swedish Standards Institute, telefon 08 - 555 520 00.

Standarder kan beställas hos SIS Förlag AB som även lämnar **allmänna upplysningar** om svensk och utländsk standard.

Postadress: SIS Förlag AB, 118 80 STOCKHOLM
Telefon: 08 - 555 523 10. Telefax: 08 - 555 523 11
E-post: sis.sales@sis.se. Internet: www.sis.se

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12810-1

December 2003

ICS 91.220

English version

Façade scaffolds made of prefabricated components - Part 1: Products specifications

Echafaudages de façade à composants préfabriqués -
Partie 1: Spécifications des produits

Fassadengerüste aus vorgefertigten Bauteilen - Teil 1:
Produktfestlegungen

This European Standard was approved by CEN on 4 September 2003.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
1 Scope	5
2 Normative references	5
3 Terms and definitions.....	6
4 Classification.....	6
5 Designation.....	7
6 Materials.....	7
7 General requirements.....	9
8 Requirements for structural design	12
9 Manuals.....	14
10 Marking	15
11 Assessment.....	15
Annex A (informative) Components commonly used in prefabricated scaffold systems	16
Annex B (informative) Typical bracing methods	18
Annex C (informative) Information about A-Deviations, selection of classes and administrative national regulations	19
Annex ZB (Informative) National A-Deviations	20

Foreword

This document (EN 12810-1:2003) has been prepared by Technical Committee CEN/TC 53 "Temporary works equipment", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

This document also contains an informative annex ZB.

This European Standard supersedes the European Harmonisation document HD 1000:1988 "Service and working scaffolds made of prefabricated elements; Materials, dimensions, design loads and safety requirements".

This European Standard is one of a series of standards as listed below.

EN 12810-1, *Façade scaffolds made of prefabricated components — Part 1: Product specifications.*

EN 12810-2, *Façade scaffolds made of prefabricated components — Part 2: Particular methods of structural design.*

EN 12811-1, *Temporary works equipment — Part 1: Scaffolds — Performance requirements and general design.*

prEN 12811-2, *Temporary works equipment — Part 2: Information on materials.*

EN 12811-3, *Temporary works equipment — Part 3: Load Testing.*

Annexes A, B and C are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

EN 12810-1:2003 (E)**Introduction**

Based on the requirements specified, a manufacturer proposes a façade scaffold system and puts it forward for assessment and certification of conformity with the requirements of this European Standard. The structural design and assessment is carried out using the standard set of system configurations chosen by the manufacturer, taking account of the requirements of this standard.

Many of the detailed requirements are given in EN 12811-1, prEN 12811-2 and EN 12811-3 with which this European Standard should be read, EN 12810-2 gives requirements for particular methods of structural design. A façade scaffold system, which has been successfully assessed will also satisfy the corresponding requirements of EN 12811-1, prEN 12811-2 and EN 12811-3. It may be used without any further calculation within the scope of the standard set of system configurations. If the performance requirements are more onerous, or if the application is outside the standard set of system configurations, then further calculations may be needed in order to show that sufficient resistance and stiffness is provided.

It is anticipated that some systems will be able to conform to the requirements of several classes.

This conversion of HD 1000 into a European Standard is intended to create a common technical base for design. This standard has a narrower scope than HD 1000 because much has been transferred to EN 12811-1, prEN 12811-2 and EN 12811-3.

1 Scope

This European Standard specifies the performance requirements and the general requirements for structural design and assessment for prefabricated façade scaffold systems. The façade scaffolds are intended for use while connected to the façade with ties. Scaffold systems are classified by six criteria, see Table 1.

It is limited to façade scaffold systems that have standards made of steel or aluminium alloy and have other elements made of these materials or timber based materials.

It defines a standard set of system configurations under which the structural design is carried out. Other configurations may be possible with some systems, but they are outside the scope.

This standard should be read in conjunction with EN 12811-1, prEN 12811-2, EN 12811-3 and EN 12810-2 which specify certain of the requirements.

This standard does not specify requirements for protection fans. It does not give information about erection, use, dismantling or maintenance.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 39, *Loose steel tubes for tube and coupler scaffolds - Technical delivery conditions.*

EN 74, *Couplers, loose spigots and base-plates for use in working scaffolds and falsework made of steel tubes - Requirements and test procedures.*

EN 755-8, *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 8: Porthole tubes, tolerances on dimensions and form.*

EN 10204, *Metallic products — Types of inspection documents.*

EN 10219-2, *Cold formed welded structural hollow sections of non-alloy and fine grain steels — Part 2: Tolerances, dimensions and sectional properties.*

EN 12810-2:2003, *Façade scaffolds made of prefabricated elements — Part 2: Particular methods of structural design.*

EN 12811-1:2003, *Temporary works equipment — Part 1: Scaffolds — Performance requirements and general design.*

prEN 12811-2, *Temporary works equipment — Part 2: Information on materials.*

EN 12811-3:2002, *Temporary works equipment — Part 3: Load Testing.*

ENV 1999-2:1998, Eurocode 9: *Design of aluminium structures — Part 2: Structures susceptible to fatigue.*

EN 12810-1:2003 (E)

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 12811-1 and the following apply.

3.1

Scaffold system

- a) set of interconnecting components, mostly purpose designed for the scaffold system, and
- b) the assessed standard set of system configurations and
- c) the product manual

3.2

Component

part of a scaffold system, which cannot be dismantled further e. g. a diagonal or a vertical frame

3.3

Element

integral (e. g. welded) part of a component, e. g. a transom of a vertical frame

3.4

Connection device

device which connects two or more components

3.5

Configuration

particular arrangement of connected components

3.6

System configuration

configuration of the scaffold system comprising a complete scaffold or a representative section from it

3.7

Standard set of system configurations

specified range of system configurations for the purpose of structural design and assessment

3.8

System width (SW)

maximum width class of Table 1 of EN 12811-1:2003 which can be realised between the standards

3.9

Assessment

the checking process establishing whether everything complies with the requirements specified in this standard

4 Classification

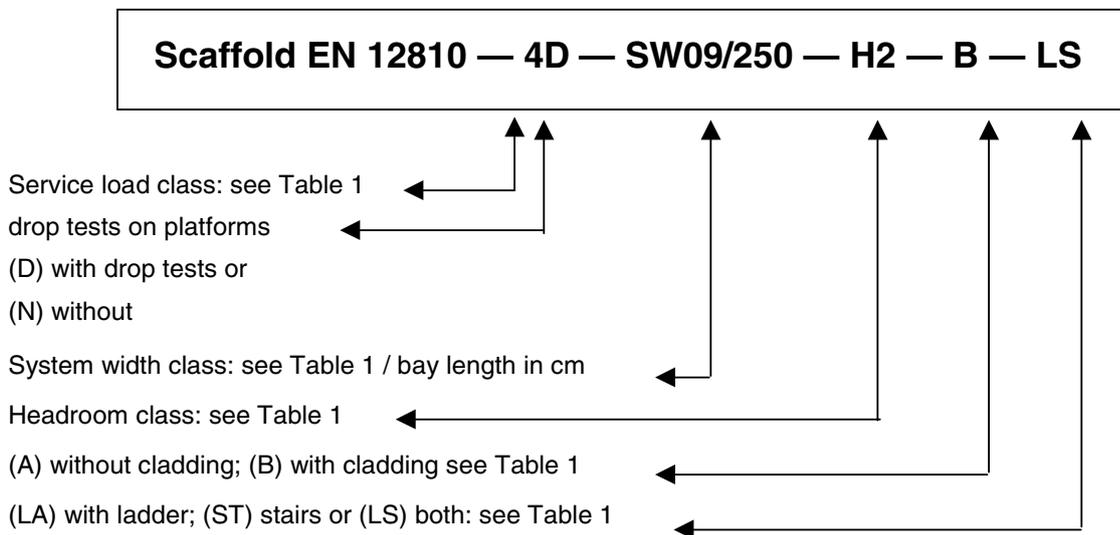
A scaffold system shall be classified in accordance with Table 1.

Table 1 — Classification of scaffold systems

Classification criterion	Classes
service load	2,3,4,5,6 in accordance with Table 3 of EN 12811-1:2003
platforms and their supports	(D) designed with (N) not designed with drop test
system width	SW06, SW09, SW12, SW15, SW18, SW21, SW24
headroom	H1 and H2 in accordance with Table 2 of EN 12811-1:2003
cladding	(B) with or (A) without cladding facilities
vertical access method	(LA) by ladder or (ST) by stair way or (LS) by both

5 Designation

The designation of a scaffold system, which is in conformity with this standard shall consist of the following parts.



The example is of a scaffold of load class 4, system width at least 0,9 m and less than 1,2 m bay length 2,5 m, headroom between working areas and transom or tie member $\geq 1,9$ m, with cladding, with ladder and stair access.

When a scaffold system includes more than one load classes and/or dimensions a separate line of designation shall be provided for each.

6 Materials

6.1 General

Materials shall, unless otherwise stated in 6.2, be chosen in accordance with clause 4 of EN 12811-1:2003 and with prEN 12811-2. Information about the most commonly used materials is given in prEN 12811-2.

EN 12810-1:2003 (E)

6.2 Specific material requirements

6.2.1 Types of material

The standards shall be made of steel or aluminium alloy.

6.2.2 Steel tubes (circular)

Steel tubes with an outer diameter of 48,3 mm shall be in accordance with the specification in Table 2.

NOTE For tubes with other diameters, see 4.2.1.3 of EN 12811-1:2003.

Table 2 — Combination of wall thickness and yield stress of steel tubes with an outer diameter of 48,3 mm

	Nominal wall thickness <i>t</i> mm	Minimum yield stress N/mm ²	Minus tolerances of the wall thickness mm
1	$2,7 \leq t < 2,9$	315	0,2
2	$t \geq 2,9$	235	in accordance with EN 10219-2

6.2.3 Aluminium tubes (circular)

Aluminium tubes with an outer diameter of 48,3 mm shall conform to the specification in Table 3.

Table 3 — Combination of nominal wall thickness and yield stress of aluminium tubes with an outer diameter of 48,3 mm

	Nominal wall thickness <i>t</i> mm	Minimum yield stress N/mm ²	Minus tolerances of the wall thickness mm
1	$3,2 \leq t < 3,6$	250	0,2
2	$3,6 \leq t < 4,0$	215	0,2
3	$t \geq 4,0$	195	in accordance with EN 755-8

6.3 Inspection documents

The materials used for load bearing elements shall be supplied with a test report 2.2 in accordance with EN 10204 or a specific test report 2.3. The following materials require inspection certificates 3.1B of EN 10204 at least:

- steel with a nominal yield stress higher than 235 N/mm²;
- cast iron;
- aluminium alloys;
- steel tubes for standards with a nominal wall thickness less than 2,9 mm.

The certificates for the tubes shall include the weight, the dimensions and the minus tolerance of Table 2 or Table 3 as appropriate. For materials not covered by EN 10204 comparable certificates shall be provided.

7 General requirements

7.1 Completeness of the range of components of the scaffold system

The scaffold system shall comprise a complete set of all the components necessary to erect the standard set of the system configurations, which shall be declared by the manufacturer. In detail, it means:

- a) the necessary vertical and horizontal components, see A.1;
- b) the components necessary to provide side protection at the outer side and ends of a scaffold, see A.2;
- c) the components necessary for the access method provided. See clause 4 and A.3);
- d) the following ancillary components (see A.4):
 - for all scaffold systems: bridging ledgers;- for the system width classes SW06 and SW09: platform extension components such as hop-up brackets with matching platform units;
 - if offered by the manufacturer: platform extension components for other system width classes, pedestrian frame, safety net, netting, sheeting, protection fan.

7.2 The standard set of system configurations

7.2.1 General

The standard set shall encompass system configurations for all components and anchorage patterns declared by the manufacturer in accordance with 7.1.

For all system configurations, the provisions of 7.2.2, and, for particular system configurations, the provisions of 7.2.3 shall be taken into account.

The standard set shall also include system configurations with all numbers of bays between 1 and n where n is the number of bays where the construction repeats.

7.2.2 Requirements valid for all system configurations

The system configurations shall have:

- a) height which is between 24 m and 25,5 m depending on the headroom class of the system and the length of the base jacks; this height is measured from the underside of the base plate to the surface of the topmost platform;
- b) a complete platform and side protection
 - for the system width classes SW06 and SW09, at all levels approximately 2,0 m apart;
 - for all other system width classes, at five adjacent levels approximately 2,0 m apart;
- c) adjustable base plates fully extended.

7.2.3 Requirements valid for certain system configurations

7.2.3.1 For the system width classes SW06 and SW09 and for other classes when offered by the manufacturer, platform extensions shall be able to be fitted inside at each platform level (see 7.2.2.b)) over the full length of the system configuration under consideration.

7.2.3.2 For unclad system configurations, there shall be the possibility of a zone of 3,8 m height free of all ties above and below a tied level