



SLOVENSKI STANDARD

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Specifikacija za dodatne komponente zidovine - 3. del: Jeklene mreže za armiranje naležnih reg

Specification for ancillary components for masonry - Part 3: Bed joint reinforcement of steel meshwork

Festlegungen für Ergänzungsbauteile für Mauerwerk - Teil 3: Lagerfugenbewehrung aus Stahl

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Spécification pour composants accessoires de maçonnerie - Partie 3: Treillis d'armature en acier pour joints horizontaux

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English version

Specification for ancillary components for masonry - Part 3: Bed joint reinforcement of steel meshwork

Spécification pour composants accessoires de maçonnerie
- Partie 3: Treillis d'armature en acier pour joints
horizontaux

Festlegungen für Ergänzungsbauteile für Mauerwerk - Teil
3: Lagerfugenbewehrung aus Stahl

This European Standard was approved by CEN on 2 October 2002.

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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.

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

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Foreword

This document (EN 845-3:2003) has been prepared by Technical Committee CEN/TC125 'Masonry', the Secretariat of which is held by BSI, following initial preparation by Working Group 3.

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of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by January 2005.

This European standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports the essential requirements of the EU Construction Products Directive (89/106/EEC).

For relationship with EU Directives, see informative Annex ZA which is an integral part of this standard.

In this European Standard the Annex A is normative.

This document supersedes EN 845-3:2001.

This Part has been modified, including the introduction of additional requirements, taking into account the detailed answer by CEN/TC 125 to EC mandate M116 for masonry as well as details of the relationship of this new harmonized European standard with the EU Directives.

EN 845 "Specification for ancillary components for masonry" consists of the following Parts:

- *Part 1: Wall ties, tension straps, hangers and brackets.*
- *Part 2: Lintels.*
- *Part 3: Bed joint reinforcement of steel meshwork.*

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.

1 Scope

This European Standard specifies the requirements for masonry bed joint reinforcement for structural use (see 5.2.1) and for non-structural use (see 5.2.2).

Where products are intended for use in cavity wall construction, this European Standard covers only the performance of the meshwork as reinforcement in bed joints and not its performance as wall ties across the cavity.

This European Standard is not applicable to:

- a) products in the form of individual bars or rods;
- b) products formed from materials other than specified grades of austenitic stainless steel or zinc pre-coated steel sheet or zinc coated steel wire with or without organic coating.

NOTE Annex ZA refers only to welded wire meshwork intended for structural use for structural use referred to in 5.2.1 as there are no known regulated requirements for products of this family for non-structural use.

2 Normative reference

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).

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EN 846-2, *Methods of test for ancillary components for masonry — Part 2: Determination of bond strength of prefabricated bed joint reinforcement in mortar joints.*

EN 846-3, *Methods of test for ancillary components for masonry — Part 3: Determination of shear load capacity of welds of prefabricated bed joint reinforcement.*

EN 10002-1, *Metallic materials; Tensile testing — Part 1: Method of test at ambient temperature.*

EN 10002-2, *Metallic materials; Tensile testing — Part 2: Verification of the force measuring system of the tensile testing machines.*

EN 10002-4, *Metallic materials; Tensile testing — Part 4: Verification of extensometers used in uniaxial testing.*

EN 10020, *Definition and classification of grades of steel.*

EN 10088-1, *Stainless steels — Part 1: List of stainless steels.*

EN 10088-2, *Stainless steels — Part 2: Technical delivery conditions for sheet/plate and strip for general purposes.*

EN 10088-3, *Stainless steels — Part 3: Technical delivery conditions for semi-finished products, bars, rods and sections for general purposes.*

EN 10142, *Continuously hot-dip zinc coated low carbon steels strip and sheet for cold forming Technical delivery conditions.*

EN 10147, *Continuously hot-dip zinc coated structural steels strip and sheet Technical delivery conditions.*

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EN 10244-1, *Steel wire and wire products-Non-ferrous metallic coatings on steel wire — Part 1: General principles.*

EN 10244-2, *Steel wire and wire products-Non-ferrous metallic coatings on steel wire — Part 2: Zinc and zinc alloy coatings.*

EN 10245-1, *Steel wire and wire products — Organic coatings on steel wire — Part 1: General rules.*

EN 10245-2, *Steel wire and wire products — Organic coatings on steel wire — Part 2: PVC finished wire.*

EN 10245-3, *Steel wire and wire products — Organic coatings on steel wire — Part 3: PE coated wire.*

ISO 10606, *Steel for the reinforcement of concrete — Determination of percentage total elongation at maximum force.*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1.1

bed joint

mortar layer between the bed faces of masonry units

3.1.2

bed joint reinforcement

steel reinforcement that is prefabricated for building into a bed joint

3.1.3

bond strength

tensile load that can be resisted by a specified length of reinforcement in a masonry bed joint

3.1.4

characteristic yield strength

the value of the yield strength above which 95 % of all the individual test results occur

3.1.5

cross-wires

wires which connect longitudinal wires

3.1.6

declared value

value for a product property, determined in accordance with this standard, that a manufacturer is confident of achieving bearing in mind the variability of the manufacturing process

3.1.7

element

complete length of bed joint reinforcement either in straight cut lengths or in a roll

3.1.8

lap length

minimum length of a piece of bed joint reinforcement running parallel with the next piece in order to maintain the full effectiveness of the reinforcement in the masonry bed joint

3.1.9

longitudinal wire

wire placed parallel to the length of the masonry

3.1.10**meshwork**

network created with welded or woven wires or as a result of expanding a strip with a series of parallel slits

3.1.11**profile height**

maximum overall height (distance between the upper and lower surfaces at right angles to the length and width of the joint) of the embedded portion of the bed joint reinforcement

3.1.12**shear load capacity**

mean value for sample of product specimens of the failure loads at the junction between two wires loaded in the direction of the longitudinal axis in the plane of the bed joint reinforcement

3.1.13**width**

overall dimension in the plane of the bed joint reinforcement measured perpendicular to the longitudinal axis

3.1.14**wire**

longitudinal cold drawn metal of any cross-sectional shape

3.1.15**wire size**

diameter in millimetres of a circle with an area equal to the cross-sectional area of the wire

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3.2 Symbols

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- A_c is the cross-sectional area of deformed plain wire, in mm^2 ;
- A_e is the cross-sectional area of bed joint reinforcement, in mm^2 ;
- A_{gt} is the percentage total elongation at maximum force, in %;
- a is the width of the bed joint reinforcement, in mm;
- b is the pitch of the cross-wire, in mm;
- c is the wire size of the longitudinal wires, in mm;
- d is the wire size of the cross-wires, in mm;
- e is the pitch of the longitudinal wires in woven wire meshwork, in mm;
- f is the aperture length of the expanded metal meshwork (centre to centre), in mm;
- g is the aperture width of the expanded metal meshwork (centre to centre), in mm;
- l_s is the length of a specimen of deformed plain wire or expanded metal meshwork, in mm;
- l is the length of an element of bed joint reinforcement as delivered by the manufacturer, in m;
- m is the mass of a specimen of deformed plain wire or expanded metal meshwork, in g;

- ρ is the nominal density of the material, in kg/m^3 ;
- R_m is the tensile strength, in N/mm^2 ;
- R_e is the yield strength, in N/mm^2 ;
- $R_{p0,2}$ is the 0,2 % proof strength, in N/mm^2 ;
- $R_{e0,5}$ is the proof strength at a total extension of 0,5 %, in N/mm^2 ;
- t is the profile height, in mm;

4 Materials and types of products

4.1 Materials

Materials for the manufacture of bed joint reinforcement and their protective coatings shall be selected from those given in Table 1. Within a product, stainless steel shall not be mixed with other types of steel.

Unless otherwise chosen by the manufacturer, the bed joint reinforcement should be tested using masonry units conforming to EN 771 with a normalized compressive strength of not greater than 5 N/mm^2 and general purpose mortar conforming to EN 998-2 with a compressive strength not greater than $1,5 \text{ N/mm}^2$.

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Table 1 — Materials and corrosion protection systems for bed joint reinforcement

Material	Specification for body material ^a	Minimum coating specification				Material coating reference ^e
		Mass per one side ^b g/m ²	Mass per two sides ^c g/m ²	Thickness per side μm ^d	Organic coating thickness mm	
Austenitic stainless steel (molybdenum chrome nickel alloys)	EN 10088	—	—	—	—	R1
Austenitic stainless steel (chrome nickel alloys)	EN 10088	—	—	—	—	R 3
Zinc coated steel wire	EN 10020 with EN 10244 zinc coating	265	—	—	—	R 13
Zinc coated steel wire with organic coating over all surfaces of finished component	EN 10020 with EN 10244 zinc coating and EN 10245 organic coating : Part 2- Class 2a or 2b or Part 3- Type III	60 ^f	—	—	min. 80 mean 100	R 18
Zinc coated steel wire	EN 10020 with EN 10244 zinc coating	105	-	-	-	R 19
Zinc coated steel wire	EN 10020 with EN 10244 zinc coating	60 ^f	-	-	-	R 20
Zinc pre-coated steel strip or sheet	EN 10142/ EN 10147- zinc coated steel	-	275	19	-	R 21

^a Except where specified an appropriate grade of steel conforming to EN 10020 for zinc-coated products may be chosen.

^b Coating weight is of zinc and is given for one side for wire and post fabrication coatings.

^c Coating weight is of zinc and given for two sides for pre-galvanized sheet products. The mean one side figure will be 50 % of the two side figure but not necessarily evenly distributed.

^d Coating thickness refers to the minimum thickness of metallic protective coating on any uncut surface of a product or any surface of a post-fabrication galvanized product.

^e This number is given to allow unambiguous materials specification and gives no indication of relative performance or quality.

^f On round wire before any subsequent processing.

4.2 Types of products

4.2.1 General

Welded wire meshwork and woven wire meshwork shall be manufactured from smooth, indented or ribbed wire, round or flattened wire, either of low carbon steel protected against corrosion or of a corrosion resistant steel. Expanded metal meshwork shall be manufactured from strip steel of the appropriate thickness and corrosion resistance.

4.2.2 Welded wire meshwork

The reinforcing element produced shall consist of longitudinal wires welded to cross-wires (ladder type) or to a continuous wire diagonal (truss type).

NOTE Examples of products for structural applications are shown in Figures 1 and 2.

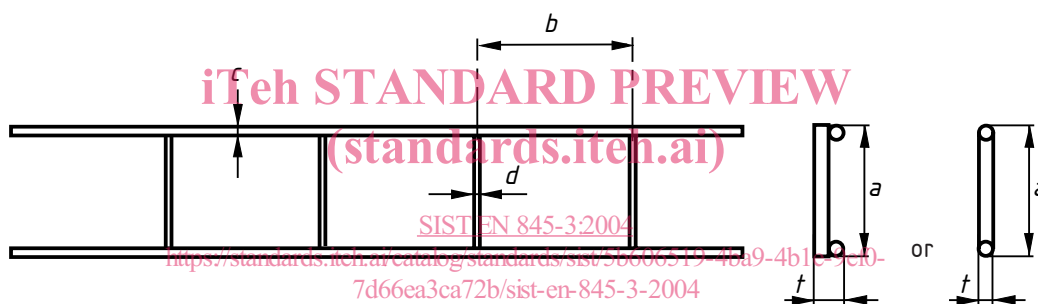
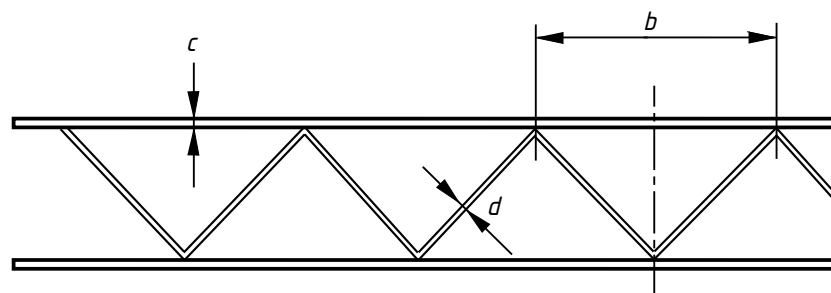


Figure 1 — Example of ladder type - plan and sections



NOTE Cross section not shown.

Figure 2 — Example of truss type - plan