BS EN 10223-6:2012

BSI Standards Publication

Steel wire and wire products for fencing and netting

Part 6: Steel wire chain link fencing

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National foreword

This British Standard is the UK implementation of EN 10223-6:2012. It supersedes BS EN 10223-6:1998, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/106, Wire Rod and Wire.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Steel wire and wire products for fencing and netting - Part 6: Steel wire chain link fencing

Fils et produits tréfilés en acier pour clôtures et grillages - Partie 6: Grillage à simple torsion en acier

Stahldraht und Drahterzeugnisse für Zäune und Drahtgeflechte - Teil 6: Stahldrahtgeflecht mit viereckigen Maschen

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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 10223-6:2012) has been prepared by Technical Committee ECISS/TC 106 “Wire rod and wires”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

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This document supersedes EN 10223-6:1998.

EN 10223 "*Steel wire and wire products for fencing and netting*" consists of the following parts:

— *Part 1: Zinc and zinc-alloy coated steel barbed wire*

— *Part 2: Hexagonal steel wire netting for agricultural, insulation and fencing purposes*

— *Part 3: Hexagonal steel wire mesh products for engineering purposes*

— *Part 4: Steel wire welded mesh fencing*

— *Part 5: Steel wire woven hinged joint and knotted mesh fencing*

— *Part 6: Steel wire chain link fencing*

— *Part 7: Steel wire welded panels for fencing*

— *Part 8: Welded mesh gabion products*

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1 Scope

This European Standard specifies dimensions, properties and coatings of steel wire chain link fencing.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10021, *General technical delivery conditions for steel products*.

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

EN 10218-1, *Steel wire and wire products — General — Part 1: Test methods*

EN 10218-2:2012, *Steel wire and wire products — General — Part 2: Wire dimensions and tolerances*

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

EN 10244-2:2009, *Steel wire and wire products — Non-ferrous metallic coatings on steel wire — Part 2: Zinc or 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*

EN ISO 16120-1, *Non-alloy steel wire rod for conversion to wire — Part 1: General requirements (ISO 16120-1)*

EN ISO 16120-2, *Non-alloy steel wire rod for conversion to wire — Part 2: Specific requirements for general-purpose wire rod (ISO 16120-2)*

3 Terms and definitions

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

3.1
mesh size
distance measured at right angles internally between adjacent parallel wires (see Figure 1)

3.2
chain link fencing
fencing manufactured from the interlocking of steel wire helices which provide approximately square meshes (see Figure 2)

Note 1 to entry: Chain link fencing may be supplied knuckled (see Figure 3) or with barbed ends, i.e. adjacent pairs of wire ends twisted together and cut at an angle (see Figure 4). Any combination of these two presentations are used for the bottom and top of the fence.

4 Information to be supplied by the purchaser

The following information shall be supplied by the purchaser at the time of enquiry and order:

a) number of this European Standard;

b) quantity and type of winding (tight or loose);

c) zinc or zinc alloy coating type and class and if coating uniformity is to be measured;

d) organic coating type colour and degree of adhesion required;

e) mesh size;

f) wire size;

g) height in metres;

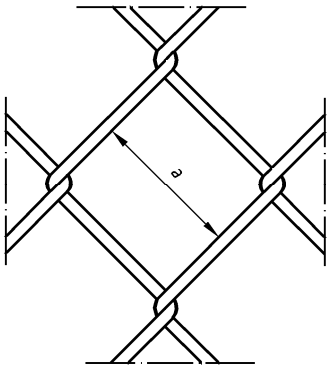
h) length of rolls;

i) whether barbed or knuckled;

j) tensile range;

k) inspection documentation requirements;

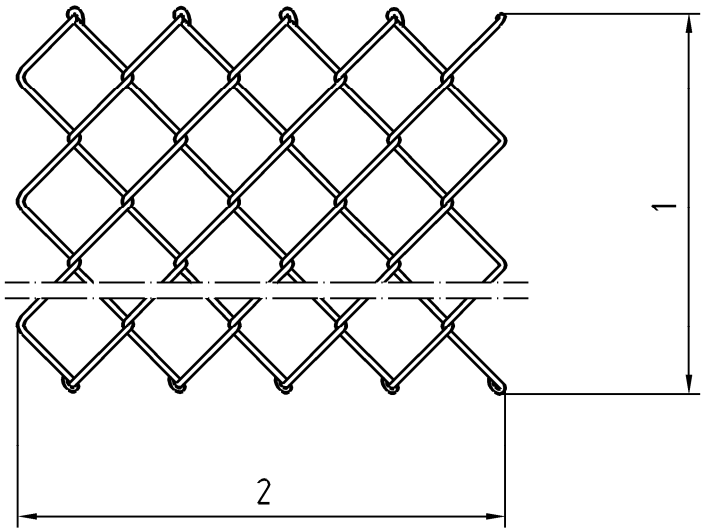
l) agreed quality characteristics for testing (see Clause 7).



Key

a distance measured at right angles

Figure 1 — Mesh size



Key

1 height
2 length

Figure 2 — Chain link fencing

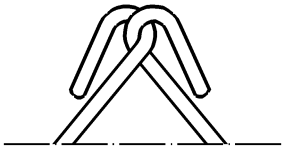


Figure 3 — Knuckled ends

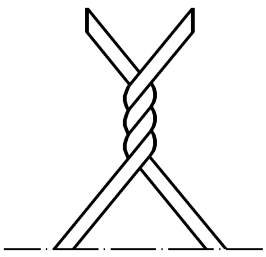


Figure 4 — Barbed ends

5 Manufacture

5.1 Base metal

The base metal of the chain link fencing shall be low carbon steel according to EN ISO 16120-1 and EN ISO 16120-2. The base wire shall be ordered as low tensile i.e. less than 600 N/mm^2 or high tensile greater than 600 N/mm^2. Within any one supplied lot the tensile spread shall not exceed 150 N/mm^2.

5.2 Fabrication

The fencing shall be fabricated from wires with the following types of coating:

a) zinc or zinc alloy coated to a minimum of EN 10244-1 and EN 10244-2:2009 complying with class A for Zn coatings and class B for Zn95/Al5 alloys (for similar service life), subsequently organic coated to the appropriate part of EN 10245-1, EN 10245-2 or EN 10245-3, either:

   1) extruded, not adherent;

   2) extruded, adherent;

   3) sintered;

b) zinc or zinc alloy coated to a minimum of EN 10244-1 and EN 10244-2:2009, class C, subsequently organic coated to the appropriate part of EN 10245-1, EN 10245-2 or EN 10245-3 either:

   1) extruded, non adherent;

   2) extruded, adherent;

   3) sintered;

c) zinc or zinc alloy coated to a minimum of EN 10244-1 and EN 10244-2:2009, class D, subsequently organic coated to the appropriate part of EN 10245-1, EN 10245-2 or EN 10245-3 either:

   1) extruded, non adherent;

   2) extruded, adherent;

   3) sintered;

d) zinc alloy Zn95/Al5 coated to a minimum of EN 10244-1 and EN 10244-2:2009, class A;

e) zinc coated to a minimum of EN 10244-1 and EN 10244-2:2009 complying with class A for Zn coatings and class B for Zn95/Al5 alloys (for similar service life);

f) zinc coated to a minimum of EN 10244-1 and EN 10244-2:2009, class C;

g) bright wire subsequently organic coated to the required part of EN 10245-1, EN 10245-2 and EN 10245-3.

6 Requirements

6.1 Tensile strength

The wire shall be either:

— low tensile (less than or equal to 600 N/m^2); or

— high tensile (greater than 600 N/mm^2).

Within any one delivered lot the tensile strength spread shall not exceed 150 N/mm^2.

6.2 Wire diameters, chain link mesh sizes, heights and tolerances

Typical mesh size and tolerances, wire diameters and tolerance on heights are given in Table 1. Typical heights are: 0,5 m, 0,8 m, 0,9 m, 1,0 m, 1,2 m, 1,4 m, 1,5 m, 1,8 m, 2,0 m, 2,1 m, 2,4 m, 2,5 m, 3,0 m, 3,5 m, 3,6 m, 4,0 m.

For the wires which are coated with zinc or zinc alloy the following tolerances on diameter shall apply:

— coated class A to EN 10244-1 and EN 10244-2: T1 of EN 10218-2:2012 (Table 1)

— coated class B to EN 10244-1 and EN 10244-2: T1 of EN 10218-2:2012 (Table 1)

— coated class C to EN 10244-1 and EN 10244-2: T2 of EN 10218-2:2012 (Table 1).

Table 1 — Chain link fencing mesh dimensions and tolerance, typical wire sizes and tolerance on height

Dimensions in millimetres

Mesh		Nominal wire diameter	Tolerance on height
Size	Tolerance		
Zinc alloy/zinc coated			
25	± 2,0	2,0; 2,50	± 30
40	± 4,0	2,0; 2,50; 3,00; 3,55	± 30
45	± 4,0	2,0	± 30
50	± 4,5	2,0; 2,20; 2,50; 3,00; 3,55; 5,00	± 40
60	± 5,0	2,00; 2,20; 2,50; 3,00; 3,55; 5,00	± 50
75	± 5,0	2,50; 3,00	± 60
Organic material (extruded) coating over a zinc/zinc alloy coated or bright wire			
25	± 2,0	1,90/2,65	± 30
40	± 4,0	1,90/2,65; 2,00/3,00; 2,25/3,15; 2,50/3,55	± 30
45	± 4,0	1,70/2,50; 1,80/2,70; 1,90/2,65; 2,25/3,15; 2,50/3,55	± 30
50	± 4,5	1,70/2,50; 1,80/2,70; 2,00/3,00; 2,25/3,15; 2,50/3,55; 3,00/4,00; 3,55/4,75; 4,75/6,40	± 40
60	± 5,0	1,70/2,50; 1,80/2,70; 2,00/3,00; 2,20/3,40; 2,50/3,80; 2,80/4,20; 3,10/4,60; 3,80/5,00	± 50
75	± 5,0	2,00/3,00; 2,25/3,15	± 60

6.3 Coating

6.3.1 Zinc/zinc alloy coating

The zinc/zinc alloy coated wires shall be tested to the appropriate class of EN 10244-2. Where samples of zinc/zinc alloy coated wires are taken from a fabricated fence, the specified minimum coating mass shall be reduced by 5 % and, where specified, the number of dips shall be reduced by one half minute.

The assessment of adherence (wrap quality) on 1 × diameter of the zinc/zinc alloy coated wire prior to fabrication shall be in accordance with quality of adherence 1 or 2 of EN 10244-2:2009 (Figure 1). The assessment of adherence (wrap quality) on 1 × diameter of the wire in the fabricated fence shall comply with quality of adherence 1, 2 or 3 of EN 10244-2:2009 (Figure 1).

6.3.2 Organic coating material

When required, the organic coating shall comply with the relevant part of EN 10245-1 and EN 10245-2 or EN 10245-3 given at the time of enquiry and order.

7 Sampling and testing

The manufacturer shall be responsible for the control of product quality by the application of statistical methods of sampling and analysis of results or, alternatively, by sampling and testing for the agreed quality characteristics at a rate of one roll/reel in one sample every week or one per production change.

8 Inspection documentation

Unless otherwise agreed at the time of enquiry and order, non specific testing and inspection documentation shall be provided according to the requirements of EN 10021 and EN 10204.

9 Methods of test

9.1 Tensile testing

Tensile testing shall be in accordance with EN 10218-1.

9.2 Coating tests

9.2.1 Zinc/zinc alloy coating

The adherence and coating mass and, where requested, the coating uniformity of the wire used to fabricate the chain link mesh shall be tested in accordance with EN 10244-1 and EN 10244-2.

9.2.2 Organic coating material

The wire coated with an organic material shall be tested in accordance with the appropriate part of EN 10245-1, EN 10245-2 or EN 10245-3.

10 Packaging

Chain link fencing shall be supplied in 12,5 m or 25 m rolls with a tolerance of $^{+2}_{0}$ %.

NOTE Other lengths may be supplied by agreement.

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