BRITISH STANDARD

BS 4102:1998

Specification for

Steel wire for general fencing purposes

ICS 77.140.65

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ISE/26, Steel wire, upon which the following bodies were represented:

Bicycle Association of GB
British Cable Makers Confederation
British Rubber Manufacturers Association Ltd.
British Stainless Steel Association
Electricity Association
Federation of Wire Rope Manufacturers of Great Britain
Forestry Commission
Health and Safety Executive
Institute of Spring Technology
National Centre of Tribology
Society of Chain Link Fencing Manufacturers
Society of Motor Manufacturers and Traders Limited
Stainless Steel Wire Industry Association
UK Steel Association
Welding Manufacturers Association (BEAMA Ltd.)
Woven Wire Association

This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on
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Amendments issued since publication

Amd. No.	Date	Text affected

The following BSI references relate to the work on this standard:
Committee reference ISE/26

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Contents

Foreword

This British Standard has been prepared by Technical Committee ISE/26. It supersedes BS 4102:1990 which is withdrawn. This new edition of BS 4102 has been editorially amended to remove technical requirements which have been superseded by European Standards. It does not constitute a full revision of the standard.

This new edition of BS 4102 does not specify requirements for:

— wire for chain linking fence;

— barbed wire;

— wire and woven wire mesh for hinged joint fencing; and

— welded steel wire mesh.

Requirements for these wires have been included in BS EN 10223-1, -4, -5 and -6, published simultaneously with this British Standard.

A British Standard does not purport to include all necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 and 2, an inside back cover and a back cover.

1 Scope

This British Standard specifies requirements for zinc coated steel wire, used in the construction of fences, including those conforming to BS 1722 for the following applications:

a) wire for cleft chestnut pale fencing;

b) general purpose line wire;

c) general purpose stirrup wire;

d) general purpose tying wire;

e) organic coated wire for strained wire dropper fencing.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this British Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the publication referred to applies.

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

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

BS EN 10244-1, *Non-ferrous metallic coating for steel wire — Part 1: General principles.*

BS EN 10244-2, *Non-ferrous metallic coating for steel wire — Part 2: Zinc and zinc alloy coatings.*

BS 1722-3, *Fences — Part 3: Specification for strained wire fences.*

3 Materials

3.1 The wire shall be as uniform as possible and free from internal and surface defects that could adversely affect its performance. Wire in coil shall be "dead cast" to lie in uniform circles with no significant helical lift.

NOTE Where wire has been zinc coated by the hot dip method, thick coatings may not be entirely free from surface irregularities and, provided these are within the generally accepted limits of good practice, they should not be cause for rejection of the wire.

3.2 With the exception of the line wires covered in **3.3**, the wire shall be of low carbon steel in the softened condition with tensile properties in accordance with **6.1**.

3.3 Line wires described as "high tensile" or "spring steel" shall be of drawn carbon steel having tensile properties in accordance with **6.3**.

4 Wire diameters and tolerances

4.1 Diameter

The nominal diameters of wires shall be in accordance with Table 1.

NOTE The approximate lengths are for information and have been calculated assuming a density of 7.82 kg/dm^3 for zinc coated wire.

4.2 Tolerances on diameter

The tolerances on diameter shall be in accordance with EN 10218-2 T1.

5 Coatings

The wire shall be zinc coated in accordance with BS EN 10244-1 and -2.

When required (see section 4 of BS 1722-3:1986) 3.15 mm zinc coated high tensile wire shall be organic coated. The overall nominal diameter shall be 4.00 mm and the concentricity of the organic coating shall be $\pm$20 % of the nominal radial thickness.

6 Tensile strength

6.1 When tested in accordance with BS EN 10218-1, the tensile strength shall be in accordance with **6.2** or **6.3**.

6.2 For wire in the softened condition the tensile strength shall be within the range 350 N/mm^2 to 550 N/mm^2.

6.3 For drawn carbon steel line wire the tensile strength shall be not less than the values given in Table 2.

Table 1 — Nominal diameters of wires for general fencing purposes

Nominal wire diameter mm	Approximate length per 100 kg m	Nominal wire diameter mm	Approximate length per 100 kg m
1.60	6359	3.00	1809
1.90	4510	3.15	1641
2.00	4070	3.55	1292
2.24	3245	4.00	1018
2.50	26.5	4.50	804
2.65	2318	5.00	651

Table 2 — Minimum tensile strength for drawn carbon steel line wire

Nominal wire diameter mm	Usual description N/mm^2	Minimum tensile strength
2.50	High tensile	1050
2.65	Spring steel	1400
3.15	High tensile	1050
3.15	Spring steel	1400

7 Inspection and testing

Test lengths sufficient for all the appropriate tests shall be selected from wire coiled at a frequency of one from the product of one original rod coil or from each 1 t.

The tensile strength shall be determined in accordance with BS EN 10218-1 and shall be calculated using the nominal overall diameter for zinc coated wire and the nominal core wire diameter for organic coated wire.

8 Marking

Each coil of wire shall be securely bound and have attached a durable label bearing the following information:

a) the manufacturer's name or identification;

b) the number and date of this British Standard[1)], i.e. BS 4102:1998;

c) the nominal wire diameter;

d) and in addition, for high tensile wire, the specified tensile strength.

The starting end of the coil of wire shall be identified.

[1)] Marking BS 4102:1998 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity.

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