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Specification for

Fences

Part 2. Woven wire fences

British Standards Institution

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Wire Products Association



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Foreword

This British Standard has been revised and metricated under the authority of the Building Divisional Council. It differs from the 1963 revision in that dimensions are expressed in SI units and it now supersedes that edition. The codes for the types of fences have been changed, and also the requirements for spring steel wire fences have been included.

For further information on SI units reference should be made to BS3763 'The International System of units (SI)'.

This Standard is being published in the following separate Parts which relate to the types of fences that are considered suitable for standardization:

- Part 1. Chain link fences
- Part 2. Woven wire fences
- Part 3. Strained wire fences
- Part 4. Cleft chestnut pale fences
- Part 5. Close-boarded fences
- Part 6. Wooden palisade fences
- Part 7. Wooden post and rail fences
- Part 8. Mild steel or wrought iron continuous bar fences
- Part 9. Mild steel or wrought iron unclimbable fences
- Part 10. Anti-intruder chain link fences
- Part 11. Woven wood fences
- Part 12. Steel palisade security fences

Consideration has been given to tubular steel fences and concrete panel fences, but it has been decided that standardization of these types would be premature.

Bonded plastics covered steel posts and wire are now coming into use in wire fences and these may be used by agreement between the supplier and the purchaser. As quickly as possible a detailed specification will be issued as an amendment to this Part. In the meantime reference should be made to BS 4102 'Steel wire for fences', Appendix B, in relation to the wire used. When handling materials and erecting the fence care must be taken to protect from abrasion the plastics covering of components, and in particular all straining devices should be used in a manner which causes the least possible damage.

The purpose of this standard is to establish minimum requirements for materials and workmanship for the more common types of fences in order to ensure satisfactory service for the purchaser, and to assist the manufacturers and erecting contractors by eliminating unnecessary minor variations in the demands of purchasers. It should be noted that no attempt has been made to standardize fences of a decorative nature, or to suit special requirements. It is suggested, however, that the structure of such fences should comply with those parts of the specification which are applicable.

Each type of fence has been subdivided according to its height and, for the sake of uniformity, this is considered to be the height of the top wire, rail or other filling above ground level as measured at the posts. The standard types of posts and struts are intended for use in normal ground but, if special conditions exist, such as ground which is either softer or firmer than is usual, they may be modified accordingly. It will be noted that throughout this Part of the standard the spacings are given in terms of the centre to centre distance.

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British Standard Specification for

Fences

Part 2. Woven wire fences

Section One. General

1. Scope

Section Two of this British Standard specifies requirements for woven wire fences of the general pattern; the types are scheduled in Table 1, which also indicates the purpose for which each type is suitable. Section Three specifies requirements for fences constructed with high tensile spring steel wire to which is attached wire netting or a combination of woven wire and wire netting. This type of fence, which requires specialized equipment for its erection, is primarily for forestry uses.

Requirements for the manufacture of concrete posts, struts and base plates are given in Appendix D. Requirements for timber and timber preservations are given in Appendix E.

Section Two. General pattern

2. Materials

2.1 Dimensions. The dimensions of the woven wire fences shall be as those specified in Table 1.

2.2 Woven wire fencing. The galvanized wire from which the fencing is made shall comply with the requirements of BS 4102 and be of diameters specified in Table 1.

2.3 Stirrup wire. The wire for securing the fencing to concrete intermediate posts shall be galvanized mild steel wire 2.50 mm diameter complying with the requirements of BS 4102.

2.4 Concrete posts and struts

2.4.1 Concrete straining posts, intermediate posts and struts shall be of reinforced concrete, conforming to the dimensions specified in Table 2, and complying with the requirements of Appendix D. The following tolerances shall apply to all the specified dimensions of concrete products:

Cross section	— 4 mm + 6 mm
Length	— 12 mm + 38 mm

In addition, a demoulding allowance of 4 mm is permissible on each of two sides.

The two long arrises at the back of the posts shall be rounded, or sharp edges removed before despatch. The shapes of heads of posts shall be such as to provide no horizontal area for lodgement of water, e.g. rounded, pyramidal or weathered.

2.4.2 Intermediate posts shall be tapered to 75 mm X 75 mm at the top.

2.4.3 Straining posts and struts shall have the same cross-section throughout their length. The posts shall be designed to provide a firm bearing for the struts which shall meet the straining posts at a point within the top third of the length of the straining post which is above the ground. If the struts are specified not to be set in concrete each strut shall be provided with a plain concrete base plate, not less than 250 mm X 250 mm X 50 mm complying with the requirements of Appendix D. Straining posts and intermediate posts shall be provided with holes for the attachment of straining fittings, or of the horizontal wires. Holes for wire or 'hair-pin' staples shall be 10 mm diameter, and holes for bolts shall be 3 mm greater than the diameter of the bolts. All holes shall be free from obstructions, and shall be accurately positioned.

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2.5 Steel intermediate posts, wing plates and bearing thrust plates. Steel intermediate posts shall conform to the dimensions specified in Table 3 and shall comply where appropriate with the following British Standards:

Rolled steel angles	BS 4848 : Part 4 and BS 4360
Structural hollow sections	BS 4: Part 2 and BS 4360
Steel tubes	BS 1775

The posts shall be pointed for driving into the ground and shall be provided with the necessary holes for fixing the mesh.

If so specified by the purchaser, intermediate posts shall have welded or sliding wing plates 225 mm X 150 mm X 3 mm or bearing thrust plates 225 mm X 114 mm X 3 mm bent at right angles or composed of two parts welded at right angles, and be pointed for driving.

Wing plates and bearing thrust plates shall be of rolled steel plate, having a tensile strength of 430 N/mm²* to 510 N/mm²* and complying with the bend test requirements of BS 4360 for Grade 43A1 steel.

2.6 Steel straining posts, struts and base plates

2.6.1 Steel straining posts and struts shall conform to the dimensions specified in Table 3 and shall comply where appropriate with the following British Standards:

Rolled steel angles	BS 4848 : Part 4 and BS 4360
Structural hollow sections	BS 4: Part 2 and BS 4360
Steel tubes	BS 1775

2.6.2 Steel base plates (and wing plates if provided) shall be rolled steel plate. The steel shall have a tensile strength of 430 N/mm²* to 510 N/mm²* and complying with the bend test requirements of BS 4360 for Grade 43A1 steel. The ends of steel straining posts and struts specified to be set in concrete shall be splayed. Steel straining posts and struts specified not to be set in concrete shall have base plates 150 mm X 150 mm X 3 mm welded or bolted on. Each steel straining post specified not to be set in concrete shall, if so specified by the purchaser, be provided with one wing plate 225 mm X 150 mm X 3 mm.

2.6.3 The struts shall be bolted to the straining posts with M 10 diameter bolts at a point within the top third of the length of the straining posts which is above the ground.

2.7 Wooden posts and struts

2.7.1 Wooden straining posts, intermediate posts and struts shall comply with the requirements of Appendix E. They shall be round or sawn as specified by the purchaser and shall conform to the dimensions specified in Table 4 or 5. All round posts and struts shall be sufficiently straight to provide one vertical face to receive the mesh.

2.7.2 Intermediate posts shall be pointed for driving.

2.7.3 The lower ends of all straining posts and struts shall be cut square across. Struts shall be fitted into a notch and securely spiked to the straining posts at a point within the top third of the length of the straining post which is above the ground.

2.8 Fittings

2.8.1 The fittings for the fences shall comply with the requirements of 2.8.1.1 to 2.8.1.7 as below.

2.8.1.1 Eye bolt strainers shall consist of bolts 250 mm X M 10 diameter with welded eyes sufficiently threaded and fitted with a nut and washer. They shall be galvanized.

2.8.1.2 Hook bolts shall consist of bolts 250 mm overall length X M 8 diameter, threaded and fitted with a nut and washer. They shall be galvanized.

* 1 N/mm² = 1 MN/m²

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2.8.1.3 Ring nut fittings for the threaded ends of eye bolts shall be galvanized.

2.8.1.4 Winding brackets for steel posts shall be of suitable design manufactured from mild steel flat not less than 38 mm X 3 mm and shall be fitted with a winding bolt of M 16 diameter and with a ferrule or ratchet winder. Winding brackets shall, where used on concrete or wooden posts or on steel posts protected by one of the metal coatings specified in 2.9.1(1), 2.9.1(2) or 2.9.1(3), be galvanized to meet the requirements of BS 729. When used on steel posts protected by the treatment specified in 2.9.1(4) or 2.9.1(5), they shall be protected by a treatment appropriate to that type of post to which they are attached.

2.8.1.5 'Hair-pin' staples for concrete posts shall be not less than 175 mm long of 3 mm round or D-section galvanized wire.

2.8.1.6 'Hair-pin' staples for steel posts shall be 38 mm long X 4.75 mm D-section galvanized wire.

2.8.1.7 Stretcher bars shall consist of mild steel 30 mm X 6 mm or round 10 mm diameter. Stretcher bars shall, when used on concrete or wooden posts or on steel posts protected by one of the metal coatings specified in 2.9(1), 2.9.1(2) or 2.9.1(3), be galvanized to meet the requirements of BS 729; when used on steel posts protected by one of the treatments specified in 2.9.1(4) or 2.9.1(5), they shall be protected by a treatment appropriate to that type of post to which they are attached.

2.9 Protective treatment of steel and ironwork

2.9.1 Unless otherwise specified in this standard, the treatment of steel and ironwork shall be that specified by the purchaser and shall be one of the following:

- (1) a metal coating complying with BS 2569: Part 1;
- (2) galvanizing after manufacture to meet the requirements of BS 729;
- (3) sherardizing to meet the requirements of BS 4921;
- (4) one works coat of paint complying with the requirements of BS 1070 or a solution complying with the requirements of BS 3416.
- (5) one works coat of red oxide primer complying with the requirements of BS 2524.

NOTE. The protective treatments specified in 2.9.1(4) and 2.9.1(5) are not intended to serve as finishing coats. The protective coatings specified in 2.9.1(4) are unsuitable to receive coatings of other material.

2.10 Concrete surrounding bases of posts. Concrete for surrounding the bases of posts and struts shall be not leaner by weight than one part of cement to ten parts of aggregate of 40 mm nominal maximum size, mixed with the minimum requisite quantity of clean water. The constituents shall be thoroughly mixed and the concrete shall be placed in position and thoroughly compacted as soon as possible after mixing.

3. Erection

3.1 Line and level. The fence shall be so erected that on completion it is truly on the line set out by the purchaser. The top of the fence shall follow approximately the profile of the ground, to levels previously indicated by the purchaser. Unless otherwise agreed between the purchaser and the supplier the erection of the fence does not include cutting or filling of the ground to vary the levels.

3.2 Straining posts. Straining posts shall be provided at all ends and corners, at changes in direction or acute variations in level, and at intervals not exceeding 150 m in straight lengths of fence.

All straining posts shall be set in the ground to a depth of 0.75 m.

The holes for straining posts shall be formed not less than 0.45 m square in plan with vertical sides. After insertion of the post the hole shall be filled for not less than half its depth with concrete, which shall be well rammed as the filling proceeds. After the concrete has hardened, the remainder of the hole shall be filled with earth which shall be well rammed as the filling proceeds.

If wooden posts, or steel posts fitted with base plates, are used, and the excavated material is suitable for ramming, the concrete may, by agreement, be omitted, the hole shall then be as small as practicable to allow for refilling with earth which shall be well rammed as the filling proceeds.

3.3 Struts (stays). Struts shall be fitted to all straining parts in the direction of each line of fencing secured to them.

The bottom end of all struts, measured to the centre of the strut or base plate, shall be not less than 0.45 m below ground level.