

Specification for

Patented cold drawn steel wire for mechanical springs

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Iron and Steel Standards Policy Committee (ISM/-) to Technical Committee ISM/26, upon which the following bodies were represented:

- Aluminium Federation
- Bicycle Association of GB
- British Cable Makers' Confederation
- British Rubber Manufacturers' Association
- British Steel Industry
- Federation of Wire Rope Manufacturers of Great Britain
- Forestry Commission
- Health and Safety Executive
- Sheffield Stainless Steel Manufacturers' Association
- Society of Chain Link Fencing Manufacturers
- Society of Motor Manufacturers and Traders Limited
- Spring Research and Manufacturers' Association
- Stainless Steel Fabricators' Association of Great Britain
- Stainless Steel Wire Industry Association
- Welding Manufacturers' Association (BEAMA Ltd.)
- Woven Wire Association
- Zinc Development Association

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Foreword

This British Standard has been prepared under the direction of the Iron and Steel Standards Policy Committee and is a revision of BS 5216:1975 which is withdrawn.

In this revision the definition of patenting is identified, a comparison with the wire grades in the former BS 1408 is included in appendix E and tensile strength values are specified for grade 1 (NS, HS) for nominal diameters 0.200 mm to 1.90 mm together with minor changes to the chemical composition and the introduction of decarburization and surface defect levels to reflect current technology.

A British Standard does not purport to include all the 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 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard specifies the requirements for patented cold drawn plain carbon steel round wire, supplied in coils, reels or cut lengths, suitable for the manufacture of mechanical springs.

Wire sizes are listed in various tensile strength grades, with restrictions on the available combination of size and strength according to the application.

In addition to the definitive requirements, this standard also requires the items detailed in clause 3 to be documented. For compliance with this standard, both the definitive requirements and the documented items have to be satisfied.

NOTE 1 The titles of the publications referred to in this standard are listed on the inside back cover.

NOTE 2 For the purposes of this standard the term "reel" is synonymous with the terms "spool" and "bobbin".

2 Definitions

For the purposes of this British Standard the definition of patenting given in BS 6562-1 applies together with the following.

2.1

static duty

applications where springs are subjected to static stresses or infrequent dynamic loading, or a combination of both. Where the stresses are high, the term high duty static is applicable and for lower levels of stress the term normal duty static is appropriate

2.2

bright

a surface finish obtained on a cold drawn wire where the only coating is that necessary for the wiredrawing process

3 Information and requirements to be agreed and to be documented

3.1 Information to be supplied by the purchaser

The following information to be supplied by the purchaser shall be fully documented.

Both the definitive requirements specified throughout the standard and the following documented items shall be satisfied before a claim of compliance with the standard can be made and verified:

- a) the number of this British Standard, i.e. BS 5216;
- b) the wire code reference (see Table 1);
- c) the tensile strength grade (see 9.1);
- d) the diameter of the wire;
- e) whether the steel wire is to be supplied as coil or reel or cut lengths.

Example 2.80 mm normal duty dynamic spring wire, bright, in tensile grade 2 coil. Ordered as: BS 5216, ND 2, 2.80 mm bright coil.

3.2 Options

If the purchaser wishes to take up any of the optional requirements given in this standard such requirements shall be specified at the time of the enquiry and/or order. In the absence of such information, the manufacturer shall supply in accordance with the following.

a) General

- 1) For wire grade M the maximum level of silicon is as given in Table 2 (see 5.2).
- 2) The wire is supplied in bright condition (see clause 6).

b) Testing

- 1) Surface defects are assessed using the deep etch test (see 7.2, and appendix B).
- 2) Tensile strength is calculated on the actual diameter of the wire (see 9.1).