

Specification for

Stainless 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been revised under the direction of the Iron and Steel Standards Policy Committee and supersedes BS 2056:1983, which is withdrawn. It makes provision for the supply of a type of martensitic stainless steel and a selection of types of austenitic stainless steel most commonly used in the manufacture of springs including steels with low magnetic permeability. A type of precipitation hardening steel is also included.

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 8, 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 stainless steel wire, in diameters up to and including 10 mm, supplied in coils, on reels or in straight lengths, suitable for the manufacture of mechanical springs.

Specific requirements are given for six types of austenitic (301S26, 302S26, 316S33 and 316S42), including two types of low magnetic permeability (305S11 and 904S14), one type of martensitic (420S45) and one type of precipitation hardening (301S81) stainless steel spring wire.

In addition to the definitive requirements, this standard also requires the items detailed in clause 2 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 British Standard the term "reel" is synonymous with the terms "spool" and "bobbin".

2 Information and requirements to be agreed and to be documented

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 2056;
- b) the steel type number (see Table 1);
- c) the nominal diameter of the wire (in mm);

d) the tensile strength grade, if 301S26 or 302S26 is being ordered (see Table 4);

e) the form of supply, i.e. coils, reels, or straight lengths;

f) any applicable requirements from the appropriate clauses for:

- 1) surface finish and condition of wire (see clause 4);
- 2) packing and identification (see clauses 6 and 11);

g) any other special requirements.

3 Manufacture

3.1 Steelmaking process

The steel shall be made by an electric furnace process.

3.2 Chemical composition

The cast analysis shall comply with the composition ranges given in Table 1 for the appropriate steel type. On request, the wire manufacturer shall supply the cast analysis. Any subsequent analytical checks on the product shall take into consideration the heterogeneity normal to the steel and shall be in accordance with Appendix A.

3.3 Freedom from defects

3.3.1 The ingots, blooms or billets shall be so prepared as to remove surface imperfections that might produce defects in the wire made from them.

3.3.2 The rod from which the wire is drawn shall be free from harmful surface defects, pipe and other flaws (see also 4.1 for finished wire).