

Specification for

**Stainless and
heat-resisting steel
round wire**

Fils ronds en acier inoxydable et résistant aux
températures élevées — Spécifications

Runddraht aus nichtrostendem und
hitzebeständigem Stahl

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

This British Standard, having been prepared under the direction of the Iron and Steel Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 30 November 1990

© BSI 1990

First published May 1949
 Second edition May 1981
 Third edition November 1990

The following BSI references relate to the work on this standard:
 Committee reference ISM/26
 Draft for comment 89/37521 DC

ISBN 0 580 18783 7

Amendments issued since publication

Amd. No.	Date	Text affected



Your ref:

Our ref: MK20

Date: Oct 1990

Linford Wood
Milton Keynes MK14 6LE
Telephone: 0908-220022
Telex: 825777 BSIMK G
Fax Gr 2/3: 0908-320856

To Members of:

Technical Committee
ISM/26
Steel Wire

Sub Committee
ISM/26/1
Low Tensile Steel Wire

Dear Member

BS 1554:1990

British Standard Specification for Stainless and Hard-Resisting
Steel Round Wire.

Gr 7

The above publication is now available and we enclose a copy with our compliments. We are very grateful for the help and co-operation of the committees concerned with its preparation and would like to thank you for your part in this work.

A copy has also been sent to interested technical and trade associations with the request that they bring it to the notice of their members. We shall be glad of any help you can give in making this and other BSI publications widely known.

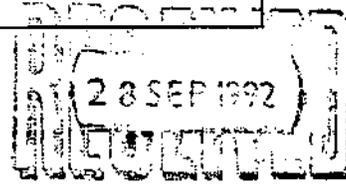
Yours sincerely

A handwritten signature in dark ink, appearing to read 'V. Johnston', is written over a light-colored background.

Director General

Amendment No. 1
published and effective from 15 October 1992
to BS 1554 : 1990

**Specification for stainless and heat-resisting
steel round wire**



Revised text

AMD 7270
October 1992

Table 3. Chemical composition of austenitic stainless steels

Between the columns for steels '309S20' and '310S25' insert the following new column for steel '310S17', which gives values for elements carbon to nickel listed in column 1.

310S17
%
0.08 max.
1.50 max.
2.00 max.
0.030 max.
0.045 max.
24.0 to 26.0
19.0 to 22.0

Delete the steel designation '316S11' and substitute '316S14'.

AMD 7270
October 1992

**Table 5. Maximum tensile strength of soft annealed, austenitic, duplex,
ferritic and martensitic stainless steels**

In column 1, after '302S31' insert '310S17'.

In the column headed 'Under 0.50 mm to 0.10 mm' delete '870' and substitute '900'.

Contents

	Page
Committees responsible	Inside front cover
Foreword	2
<hr/>	
Specification	
1 Scope	3
2 Manufacture and properties	3
3 Method of supply	3
4 Selection of test pieces	3
5 Methods of testing	3
6 Tolerances on diameter and ovality	4
7 Retests	4
8 Packaging and marking	4
<hr/>	
Appendices	
A Information to be supplied by the purchaser in the enquiry and/or order	14
B Product analysis and permitted variations	14
<hr/>	
Tables	
1 Chemical composition of ferritic stainless steels	5
2 Chemical composition of martensitic stainless steels	6
3 Chemical composition of austenitic stainless steels	7
4 Chemical composition of duplex stainless steels	10
5 Maximum tensile strength of soft annealed, austenitic, duplex, ferritic and martensitic stainless steels	11
6 Tolerances on diameter and ovality of wire for general purposes not including weaving wire and wire for special applications	13
7 Tolerances on diameter and ovality of weaving wire and wire for special applications	13
8 Permitted variations of product analysis from the specified range	15

Foreword

This British Standard has been prepared under the direction of the Iron and Steel Standards Policy Committee. It is a revision of BS 1554 : 1981 which is withdrawn.

In this revision the number of steels specified has been increased to align with current practice and to take account of the needs of the wire weaving industry. Dimensional tolerances appropriate to wire weaving have also been introduced.

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

Specification

1 Scope

This British Standard specifies stainless and heat-resisting steel round wire, supplied in coils, on spools or in straight lengths, suitable for general engineering purposes. It is applicable to wire sizes in the range from 0.03 mm diameter up to and including 13 mm diameter. This standard does not specify steel wires intended for springs, gas shielded welding, roping or cold heading.

NOTE 1. The information to be supplied by the purchaser in the enquiry and order is given in appendix A.

NOTE 2. The titles of the publications referred to in this standard are listed on the inside back cover.

2 Manufacture and properties

2.1 Steelmaking process

The steel shall be made by an electric furnace process.

2.2 Chemical composition

The chemical composition of the steel, based on cast analysis, shall be as given in tables 1, 2, 3 and 4, as appropriate. Any subsequent analytical checks of composition of the wire shall take into consideration analytical reproducibility and the heterogeneity that is normal to the steel (see appendix B).

2.3 Condition of finished wire

2.3.1 The wire shall be free from defects to a degree that would be harmful in the further processing or performance of the wire.

NOTE. The end use of the wire, therefore, should be the subject of discussion between the purchaser and manufacturer at the time of the enquiry and order (see item (d) of appendix A).

2.3.2 The wire shall be supplied either in the annealed (softened) or cold drawn condition. For austenitic stainless steel wire required in the softened condition, the wire shall be heat treated in the temperature range 1000 °C to 1120 °C.

NOTE 1. The condition in which the wire is to be supplied should be agreed between the purchaser and manufacturer at the time of the enquiry and order (see item (e) of appendix A).

NOTE 2. Wire can be supplied with a ground surface in either coils or straight cut lengths. It may be supplied with other surface finishes, e.g. wet drawn reeled, mechanically polished, drawn, to facilitate further fabrication processes. These should be subject to agreement between the purchaser and manufacturer at the time of the enquiry and order (see item (f) of appendix A).

2.4 Tensile strength

The tensile strength of wire in the annealed condition shall be as given in table 5.

NOTE 1. For wire less than 0.10 mm in diameter, the maximum tensile strength should be agreed between the purchaser and manufacturer at the time of the enquiry and order (see item (g) of appendix A).

NOTE 2. The tensile strength range for wire in the cold drawn condition should be agreed between the purchaser and manufacturer at the time of the enquiry and order (see item (h) of appendix A). The agreed range should be no greater than 200 N/mm² (between the minimum and maximum figures).

3 Method of supply

The wire shall be supplied in coil form, wound on spools or formers, or as straight cut lengths, in bundles appropriate for the diameter of wire. Wire in coils or on a spool shall be supplied in single continuous lengths without knots or tie-ins (see also item (i) of appendix A).

NOTE 1. The acceptability of welds in coils or spools should be agreed between the purchaser and manufacturer at the time of the enquiry and order (see item (i) of appendix A).

NOTE 2. The size of bundles for straight cut lengths should be agreed between purchaser and manufacturer at the time of the enquiry and order (see item (j) of appendix A).

4 Selection of test pieces

4.1 Test unit

For the purpose of selection of test pieces, a test unit shall consist of all the wire from one cast, presented for inspection, in one form of supply, i.e. coils, spools or bundles, manufactured by the process to one finished condition.

4.2 Rate of sampling

Test pieces shall be selected from a minimum of 10 % of the coils, spools or bundles in each test unit. Test pieces shall be taken from one end of each selected coil or spool. From each selected bundle a minimum of one length shall be taken at random.

NOTE. By arrangement between purchaser and manufacturer a sampling plan based on BS 6001 may be used (see item (k) of appendix A).

4.3 Intercrystalline corrosion test

For the intercrystalline corrosion test, one test piece shall be taken from each test unit.

5 Methods of testing

5.1 Diameter

The diameter of the wire shall be the mean of two measurements of diameter at right angles at the same cross section of the wire.

NOTE. The wire should be straightened prior to measurement.

5.2 Tensile tests

Tensile tests shall be carried out in accordance with BS 4545. The tensile strength shall be calculated on the actual diameter of the wire as measured in accordance with 5.1.

5.3 Intercrystalline corrosion test

When this test is specified by the purchaser it shall be carried out in accordance with BS 5903 (see item (l) of appendix A).

NOTE. This test is applicable only to austenitic stainless steel wire.

6 Tolerances on diameter and ovality

Wire to be used for general purposes shall be supplied within tolerances on diameter and ovality as given in table 6 and as measured in accordance with 5.1.

The ovality shall be defined as the difference between the maximum and minimum dimensions of the wire at the same cross section.

Wire for weaving and special applications shall be supplied within tolerances on diameter and ovality as given in table 7 and as measured in accordance with 5.1.

NOTE. Tolerances on diameter and ovality for ground wire should be agreed between purchaser and manufacturer at time of enquiry and order (see item (m) of appendix A).

7 Retests

If any test piece fails any of the tests specified in clause 5 the manufacturer may, at his discretion, retain or not retain in the test unit the product sample from which the unsatisfactory test results have been obtained.

(a) If the product sample is withdrawn from the test unit, the manufacturer shall ensure that the inspection representative designates within the same test unit, two other product samples of his choice. Two more tests of the same type shall then be carried out on test pieces from these two product samples, under the same conditions as for the first tests; both new tests shall give satisfactory results.

(b) If the product sample is retained in the test unit, the procedure is as indicated in item (a) but one of the new test pieces shall be taken from the product retained in the test unit; both new tests shall give satisfactory results.

NOTE. The manufacturer has the right to carry out sorting or reprocessing, e.g. heat treatment, machining, rolling, drawing, of non-conforming products, either before or after the retests, and to submit these products as a new test unit in accordance with clause 4.

8 Packaging and marking

Wire in coils, on spools or bundles of lengths shall be securely tied and each coil, spool or bundle shall be identified by a durable label on which shall be shown the following minimum information:

- (a) the supplier's name;
- (b) the steel designation;
- (c) the number of this British Standard, i.e. BS 1554¹⁾;
- (d) the nominal wire diameter or size;
- (e) the cast number;
- (f) the condition, i.e. annealed, cold drawn;
- (g) the range of tensile strength and/or the condition of the wire as ordered, if appropriate.

NOTE. Any other packing requirements should be agreed between the purchaser and manufacturer at the time of the enquiry and order (see item (n) of appendix A).

¹⁾ Marking BS 1554 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, which may also be desirable.

Table 1. Chemical composition of ferritic stainless steels				
Element	Steel designation			
	430S18	430S11	434S20	436S20
	%	%	%	%
C	0.10 max.	0.030 max.	0.12 max.	0.12 max.
Si	1.00 max.	1.00 max.	1.00 max.	1.00 max.
Mn	1.00 max.	1.00 max.	1.00 max.	1.00 max.
S	0.030 max.	0.030 max.	0.030 max.	0.030 max.
P	0.040 max.	0.040 max.	0.040 max.	0.040 max.
Cr	16.0 to 18.0	16.0 to 18.0	16.0 to 18.0	16.0 to 18.0
Ni	1.00 max.	1.00 max.		
Mo			0.75 to 1.25	0.75 to 1.25
Ti				
Nb				5 × C min. 0.70 max.
Cu				
Other				

Table 2. Chemical composition of martensitic stainless steels

Element	Steel designation							
	410S21	416S21	416S41	420S29	420S37	420S45	431S29	441S49
	%	%	%	%	%	%	%	%
C	0.09 to 0.15 ¹⁾	0.09 to 0.15	0.09 to 0.15	0.14 to 0.20	0.20 to 0.28	0.28 to 0.36	0.12 to 0.20	0.12 to 0.20
Si	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.
Mn	1.00 max.	1.50 max.	1.50 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.50 max.
S	0.030 max.	0.15 to 0.35	0.060 max.	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.030 max.
P	0.040 max.	0.060 max.	0.060 max.	0.040 max.	0.040 max.	0.040 max.	0.040 max.	0.040 max.
Cr	11.5 to 13.5	11.5 to 14.0	11.5 to 13.5	11.5 to 13.5	12.0 to 14.0	12.0 to 14.0	15.0 to 18.0	15.0 to 18.0
Ni	1.0 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	2.0 to 3.0	2.0 to 3.0
Mo		0.60 max.	0.60 max.					0.60 max.
Ti								
Nb								
Cu								
Other			Se 0.15 to 0.35					Se 0.15 to 0.35

¹⁾ For wire diameter 0.08 mm and less the maximum carbon content is 0.08 %.

Table 3. Chemical composition of austenitic stainless steels

Element	Steel designation							
	202S16	301S22	302S31	303S31	303S42	304S31	304S15	304S11
	%	%	%	%	%	%	%	%
C	0.15 max.	0.15 max.	0.12 max.	0.12 max.	0.12 max.	0.07 max.	0.06 max.	0.030 max.
Si	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.
Mn	7.50 to 10.0	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.
S	0.030 max.	0.030 max.	0.030 max.	0.15 to 0.35	0.060 max.	0.030 max.	0.030 max.	0.030 max.
P	0.060 max.	0.045 max.	0.045 max.	0.060 max.	0.060 max.	0.045 max.	0.045 max.	0.045 max.
Cr	17.0 to 19.0	16.0 to 18.0	17.0 to 19.0	17.0 to 19.0	17.0 to 19.0	17.0 to 19.0	17.5 to 19.0	17.0 to 19.0
Ni	4.0 to 6.0	6.50 to 9.0 ¹⁾	8.0 to 10.0	8.0 to 10.0	8.0 to 10.0	8.0 to 11.0	8.0 to 11.0	9.0 to 12.0 ²⁾
Mo		0.80 max.		1.00 max.	1.00 max.			
Ti								
Nb								
Cu								
Other	N 0.25 max.				Se 0.15 to 0.35			

¹⁾ For maximum work hardening the nickel content for type 301S22 should be specified as 6.0 % to 8.0 %.

²⁾ For wire diameters 0.08 mm and less the minimum nickel content is 8.0 %.

Table 3 (concluded)

Element	Steel designation								
	317S17	317S11	318S17	321S31	325S31	326S42	347S20	394S17	904S14
	%	%	%	%	%	%	%	%	%
C	0.08 max.	0.030 max.	0.08 max.	0.08 max.	0.12 max.	0.12 max.	0.08 max.	0.07 max.	0.030 max.
Si	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.
Mn	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.
S	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.15 to 0.35	0.060 max.	0.030 max.	0.030 max.	0.030 max.
P	0.045 max.	0.045 max.	0.045 max.	0.045 max.	0.060 max.	0.060 max.	0.045 max.	0.045 max.	0.040 max.
Cr	18.0 to 20.0	18.0 to 20.0	18.0 to 20.0	17.0 to 19.0	17.0 to 19.0	16.5 to 18.5	17.0 to 21.0	17.0 to 19.0	19.5 to 22.0
Ni	12.0 to 15.0	12.0 to 15.0	11.0 to 14.0	9.0 to 12.0	8.0 to 11.0	10.0 to 13.0	9.0 to 12.0	8.0 to 10.5	24.0 to 27.0
Mo	3.00 to 4.00	3.00 to 4.00	2.00 to 3.00		0.70 max.	2.25 to 3.0			4.00 to 5.00
Ti				5 × C min. 0.80 max.	5 × C min 0.90 max.				
Nb			10 × C min. 1.0 max.				10 × C min. 1.0 max.		
Cu								3.00 to 4.00	1.00 to 2.00
Other						Se 0.15 to 0.35			N 0.06 max.

Table 4. Chemical composition of duplex stainless steels	
Element	Steel designation
	22.8.3.L
	%
C	0.03 max.
Si	1.00 max.
Mn	2.00 max.
S	0.030 max.
P	0.045 max.
Cr	21.5 to 23.5
Ni	7.0 to 9.0
Mo	2.80 to 3.80
Ti	
Nb	
Cu	
Other	N 0.07 to 0.15

Table 5. Maximum tensile strength of soft annealed, austenitic, duplex, ferritic and martensitic stainless steels

Steel designation	Wire diameter ¹⁾			
	13.00 mm to 6.00 mm	Under 6.00 mm to 1.50 mm	Under 1.50 mm to 0.50 mm	Under 0.50 mm to 0.10 mm
	N/mm ²	N/mm ²	N/mm ²	N/mm ²
301S22	} 750	} 800	} 880	} 900
302S31				
310S25				
314S25				
325S31				
326S42				
202S16				
303S31	} 700	} 770	} 820	} 870
303S42				
304S31				
304S15				
309S20				
316S19				
316S33				
320S18				
317S17				
318S17				
321S31				
394S17				
904S14				
347S20	700	800	940	950
304S11	} 650	} 750	} 775	} 850
305S11				
316S11				
317S11				

¹⁾ For wire of under 0.10 mm in diameter, see note 1 of 2.4.

Table 5. (concluded)				
Steel designation	Wire diameter¹⁾			
	13.00 mm to 6.00 mm	Under 6.00 mm to 1.50 mm	Under 1.50 mm to 0.50 mm	Under 0.50 mm to 0.10 mm
22.8.3L	N/mm ² 900	N/mm ² 960	N/mm ² 960	N/mm ² 960
430S18 430S11 434S20 436S20	} 610	} 620	} 630	} 650
441S29 441S49	} 920	} 950	} 980	} 980
410S21 416S41 416S21 420S29	} 700	} 700	} 750	} 780
420S37 420S45	} 780	} 780	} 800	} 820

¹⁾ For wire of under 0.10 mm in diameter, see note 1 of 2.4.

Table 6. Tolerances on diameter and ovality of wire for general purposes not including weaving wire and wire for special applications

Nominal diameter	Tolerance on diameter		Maximum allowance for ovality	
	Coils, spools	Straight lengths	Coils, spools	Straight lengths
mm	mm	mm	mm	mm
13.0 to 10.0	± 0.08	± 0.10	0.08	0.10
Under 10.0 to 8.50	± 0.06	± 0.10	0.06	0.10
Under 8.50 to 5.60	± 0.05	± 0.07	0.05	0.08
Under 5.60 to 3.20	± 0.04	± 0.06	0.04	0.06
Under 3.20 to 1.90	± 0.03	± 0.05	0.03	0.05
Under 1.90 to 1.00	± 0.03	± 0.04	0.03	0.04
Under 1.00 to 0.80	± 0.02	± 0.03	0.02	0.03
Under 0.80 to 0.50	± 0.016	± 0.02	0.016	0.02
Under 0.50 to 0.20	± 0.010	± 0.018	0.010	0.018
Under 0.20 to 0.08	± 0.006	± 0.018	0.006	0.018
Under 0.08	± 0.004	± 0.018	0.004	0.018

Table 7. Tolerances on diameter and ovality of weaving wire and wire for special applications

Nominal diameter	Tolerance on diameter	Maximum allowance for ovality
mm	mm	mm
3.0 to 2.50	± 0.03	0.03
Under 2.50 to 1.60	± 0.025	0.025
Under 1.60 to 1.00	± 0.02	0.02
Under 1.00 to 0.80	± 0.015	0.015
Under 0.80 to 0.50	± 0.010	0.010
Under 0.50 to 0.30	± 0.008	0.008
Under 0.30 to 0.20	± 0.006	0.006
Under 0.20 to 0.15	± 0.005	0.005
Under 0.15 to 0.10	± 0.004	0.004
Under 0.10 to 0.07	± 0.003	0.003
Under 0.07 to 0.05	± 0.002	0.002
Under 0.05	± 0.0015	0.002

Appendices

Appendix A. Information to be supplied by the purchaser in the enquiry and/or order

The following information should be given in the enquiry and order to assist the manufacturer in supplying the correct material:

- (a) the number of this British Standard, i.e. BS 1554;
- (b) the steel designation (see tables 1, 2, 3 and 4);
- (c) the nominal diameter of the wire and the tolerances required (see tables 6 and 7);
- (d) where appropriate, the end use for the wire, e.g. weaving (see note to 2.3.1);
- (e) the specified condition of the wire, i.e. annealed (softened) or cold drawn (see note 1 to 2.3.2);
- (f) the surface finish (see note 2 to 2.3.2);
- (g) for wire under 0.10 mm in diameter, the maximum tensile strength required (see note 1 to 2.4);
- (h) for wire in the cold drawn condition, the range of tensile strength required (see note 2 to 2.4);
- (i) the acceptability of welds in coils or spools (see note 1 to clause 3);

(j) the size of bundles for straight cut lengths (see note 2 to clause 3);

(k) whether a sampling plan based on BS 6001 is to be used (see note to 4.2);

(l) whether intercrystalline corrosion tests are required (see 5.3);

(m) the tolerances required on diameter and ovality for ground wire (see note to clause 6);

(n) any additional packaging requirements (see note to clause 8).

Appendix B. Product analysis and permitted variations

B.1 Analysis of the product may vary from the cast analysis due to heterogeneity arising during the casting and solidification of the ingot. Table 8 shows the permitted variations of product analysis.

The variations may occur either above or below the individual element ranges, but they shall not be applied both above and below the specified range for any one element in any one cast of steel.

B.2 If the chemical analysis of any wire falls outside the limits of permissible variation from the specified composition range for a significant element, that wire shall be deemed not to comply with this British Standard.

Table 8. Permitted variations of product analysis from the specified range			
Element	Specified range	Over maximum	Under minimum
Carbon	%	%	%
	Up to and including 0.030	0.005	—
	Over 0.030 up to and including 0.25	0.01	0.01
	Over 0.25 up to and including 0.40	0.02	0.02
Silicon	Up to and including 1.00	0.05	—
	Over 1.00	0.07	0.07
Manganese	Up to and including 1.00	0.03	—
	Over 1.00 up to and including 2.00	0.04	0.04
Sulphur	Up to and including 0.030	0.003	—
	Over 0.030 up to and including 0.080	0.005	0.005
	From 0.15 up to and including 0.35	0.02	0.02
Phosphorus	Up to and including 0.030	0.003	—
	Over 0.030 up to and including 0.060	0.004	0.004
Chromium	Up to and including 15.0	0.15	0.15
	Over 15.0 up to and including 20.0	0.20	0.20
	Over 20.0	0.25	0.25
Nickel	Up to and including 1.00	0.03	0.03
	Over 1.00 up to and including 3.00	0.05	0.05
	Over 3.00 up to and including 10.00	0.10	0.10
	Over 10.00 up to and including 20.0	0.15	0.15
	Over 20.0	0.20	0.20
Molybdenum	Up to and including 1.00	0.03	0.03
	Over 1.00 up to and including 3.00	0.08	0.08
	Over 3.00 up to and including 5.00	0.10	0.10
Titanium	All ranges	0.05	0.05
Niobium	All ranges	0.05	0.05
Copper	All ranges	0.10	0.10
Selenium	All ranges	0.03	0.03

Publications referred to

- BS 4545 Methods for mechanical testing of steel wire
- BS 5903 Method for determination of resistance to intergranular corrosion of austenitic stainless steels: copper sulphate-sulphuric acid method (Money penny Strauss test)
- BS 6001 Sampling procedures for inspection by attributes

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Contract requirements

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.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

Any person who finds an inaccuracy or ambiguity while using this British Standard should notify BSI without delay so that the matter may be investigated swiftly.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying British Standards

Orders for all British Standard publications should be addressed to the Sales Department at Milton Keynes.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library, the Standardline Database, the BSI Information Technology Service (BITS) and its Technical Help to Exporters Service. Contact Enquiry Section at Milton Keynes: Tel: 0908 221166.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact the Manager, Membership Development at Milton Keynes: Tel: 0908 220022.

Copyright

Copyright subsists in all BSI publications. No part of this publication may be reproduced in any form without the prior permission in writing of BSI. This does not preclude the free use, in the course of implementing the standard, of details such as symbols and size, type or grade designations. Enquiries about copyright should be made to the Copyright Manager, Marketing at Milton Keynes.

BSI
2 Park Street
London
W1A 2BS

BSI
Linford Wood
Milton Keynes
MK14 6LE