

# Graphical symbols for compressing plant —

Graphical symbols for general  
engineering

UDC.003.62:621.51

**NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW**

---



## Co-operating organizations

The Mechanical Industry Standards Committee under whose supervision this British Standard was prepared consists of representatives from the following Government departments, and scientific and industrial organizations:—

Admiralty\*  
 Air Ministry\*  
 Associated Offices Technical Committee  
 Association of Consulting Engineers Incorporated  
 British Chemical Plant Manufacturers' Association  
 British Compressed Air Society\*  
 British Electrical and Allied Manufacturers' Association\*  
 British Engineers' Association\*  
 British Internal-combustion Engine Manufacturers' Association\*  
 British Iron and Steel Federation  
 British Railways  
 Crown Agents for the Colonies  
 Department of Scientific and Industrial Research  
 Engineering Equipment Users' Association  
 Institute of Marine Engineers  
 Institute of Petroleum  
 Institution of Civil Engineers\*  
 Institution of Gas Engineers  
 Institution of Heating and Ventilating Engineers  
 Institution of Mechanical Engineers\*  
 institution of Mechanical Engineers (Automobile Division)  
 Institution of Production Engineers  
 Locomotive Manufacturers' Association  
 Machine Tool Trades' Association  
 Ministry of Fuel and Power  
 Ministry of Labour and National Service  
 Ministry of Supply  
 Ministry of Transport  
 Ministry of Works\*  
 Office of the High Commissioner for India  
 War Office\*

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this standard:—

Association of Technical Institutes  
 British Electrical and Allied Industries Research Association  
 General Post Office  
 Institution of Electrical Engineers  
 Institution of Chemical Engineers  
 Institution of Engineers and Shipbuilders in Scotland  
 Institution of Mining and Metallurgy  
 Institution of Structural Engineers  
 Institution of Water Engineers  
 North East Coast Institution of Engineers and Shipbuilders  
 Society of Chemical Industry

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee and endorsed by the chairman of the Engineering Divisional Council, was published under the authority of the General Council on 7th September, 1950

© BSI 03-1999

ISBN 0 580 01855 5

### Amendments issued since publication

Amd. No.	Date	Comments

---

# Contents

	Page
Co-operating organizations	Inside front cover
Foreword	ii
<hr/>	
Section 21. Compressors	
Group 21A. Rotary compressors	1
Group 21B. Reciprocating compressors	1
<hr/>	
Section 22. Ancillary plant	
Group 22A. Separators, filters, etc.	2
Group 22B. Coolers, driers and receivers	2
Group 22C. Miscellaneous	3
British Standards on allied subjects	3
<hr/>	
Diagrams showing the use of the symbols	
(A) Air-compressing plant supplying air-operated switchgear	4
(B) Oxygen-producing plant, typical flow sheet	5
<hr/>	
Index	
Alphabetical index of symbols	6
British Standards	Inside back cover

---

## Foreword

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

A complete list of British Standards, numbering over 9,000, fully indexed and with a note of the contents of each, will be found in the BSI Catalogue which may be purchased from BSI Sales Department. The Catalogue may be consulted in many public libraries and similar institutions.

It has long been felt that, except in the electrical engineering field, there has been a lack of uniformity in the method adopted for the preparation of schematic diagrams of engineering plant generally, and that there is need for standardized symbols by which particular items of the plant can conveniently be identified, applying equally to different branches of engineering.

To meet this need, the preparation of a series of British Standards for graphical symbols for general engineering has been undertaken.

Part 1 of the series covers pipes and valves generally, and Part 2 deals with power generating plant, while the present standard, forming Part 3, is devoted to the more specialized field of compressing plant, including installations for use in conjunction with air-operated switchgear and other apparatus not covered by the revised edition of BS 108, "Graphical symbols for electrical engineering (power and lighting)".

For other relevant British Standards, see list on page 3.

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

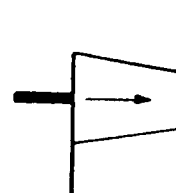
This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

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.

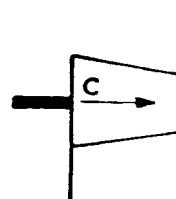
## Section 21. Compressors

### Group 21A. Rotary compressors

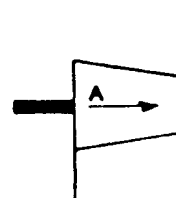
21A1 Rotary compressor, general symbol



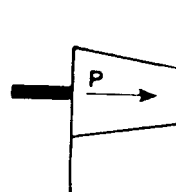
21A2 Centrifugal compressor



21A3 Axial-flow compressor

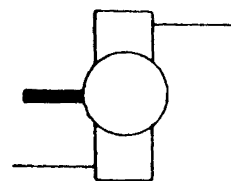


21A4 Positive-displacement compressor



### Group 21B. Reciprocating compressors

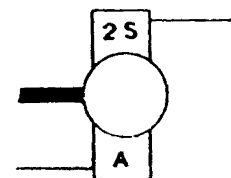
21B1 Reciprocating compressor, general symbol



*Example:*— Two-stage air-cooled compressor

In the upper rectangle the number of stages is indicated by a figure followed by S.

In the lower rectangle the method of cooling is indicated by the letters, A, W, O or G. (See Part 1, page 4.)



**Section 22. Ancillary plant**

**Group 22A. Separators, filters, etc.**

22A1 Separator, general symbol



22A2 Filter or strainer

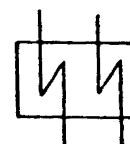


**Group 22B. Coolers, driers and receivers**

22B1 Air cooler (e.g., intermediate stage cooler or aftercooler)

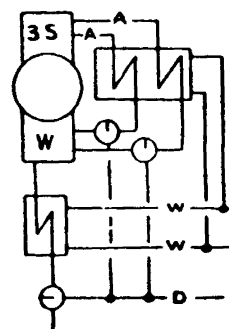


22B2 Multi-stage (here, two-stage) cooler in one tank

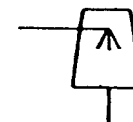


*Example of use:—*

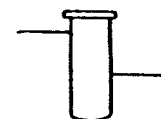
Three-stage compressor with two-stage intercooler in one tank with oil/water separators, aftercooler and oil/water separator.



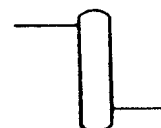
22B3 Circulating-water cooler



22B4 Drier



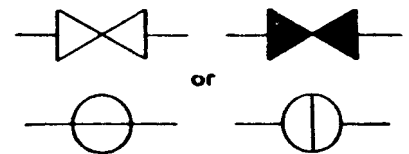
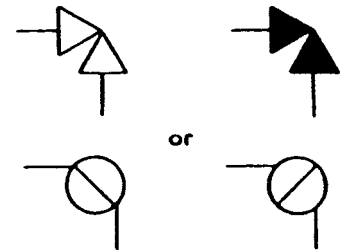
22B5 Air receiver



**Group 22C. Miscellaneous****22C1** Fusible plug**22C2** Bursting disk

open

closed

**22C3** Valve, general symbol**22C4** Angle valve

NOTE Where symbols or reference letters other than those given in the standard are used they shall be referred to in a table given on the drawing. When specially desired, all symbols used may be included in a table on the drawing.

**British Standards on allied subjects**BS 1553, *Graphical symbols for general engineering.*BS 1553-1, *Pipes and valves.*BS 1553-2, *Power-generating plant.*BS 1553-4, *Heat and ventilating plant.*BS 974, *Symbols for use on diagrams of chemical plant.*BS 1646, *Graphical symbols for instrumentation.*BS 308, *Engineering drawing-office practice.*BS 1192, *Architectural and building drawing-office practice.*

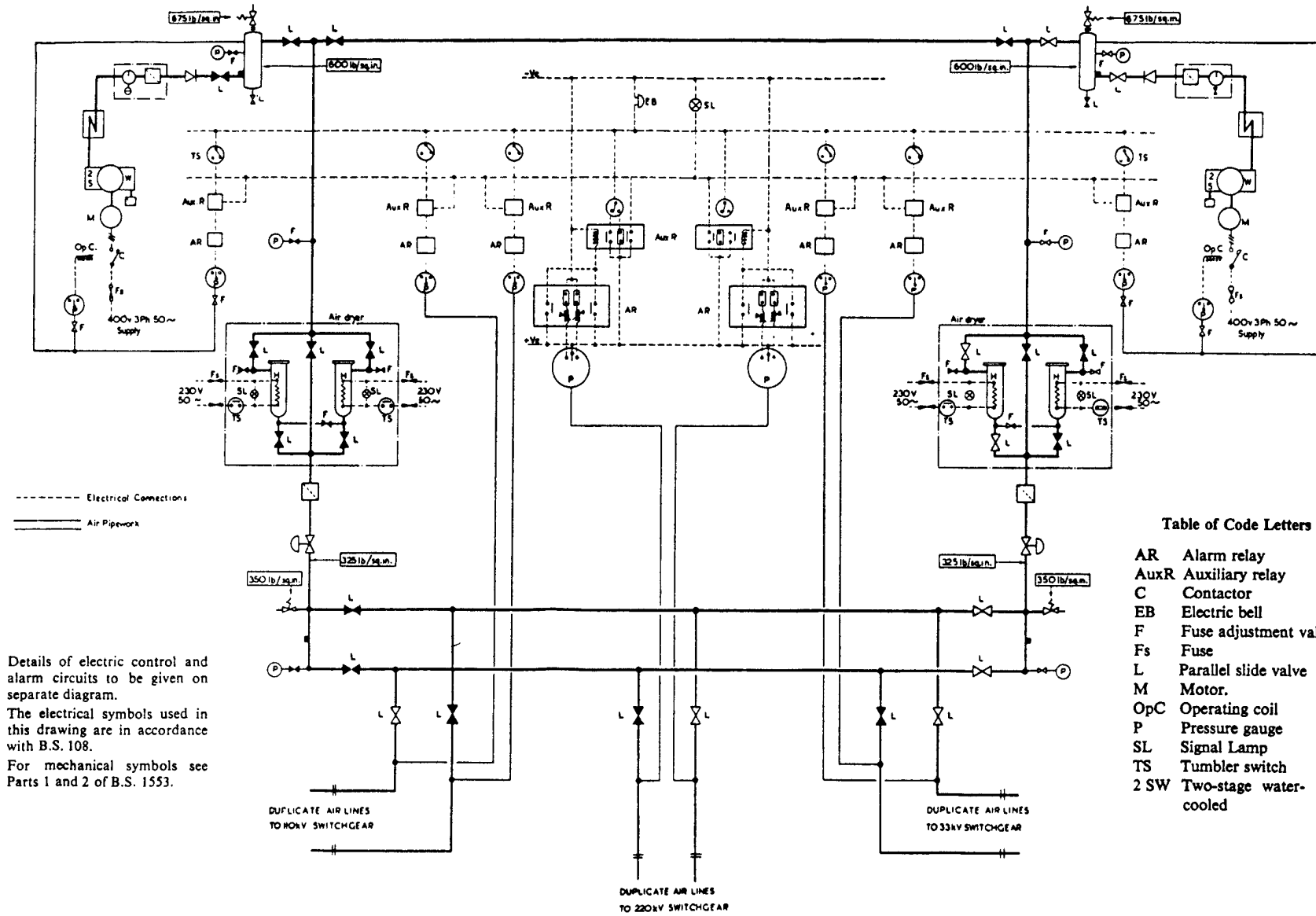
For letter symbols and abbreviations, reference should be made to :—

BS 560, *Engineering symbols and abbreviations.*BS 813, *Chemical symbols and abbreviations.***Diagrams showing the use of the symbols**

A) Air-compressing plant supplying air-operated switchgear (page 4).

B) Oxygen-producing plant, typical flow sheet (page 5).

### A. Air-compressing plant supplying air-operated switchgear



----- Electrical Connections  
 \_\_\_\_\_ Air Pipework

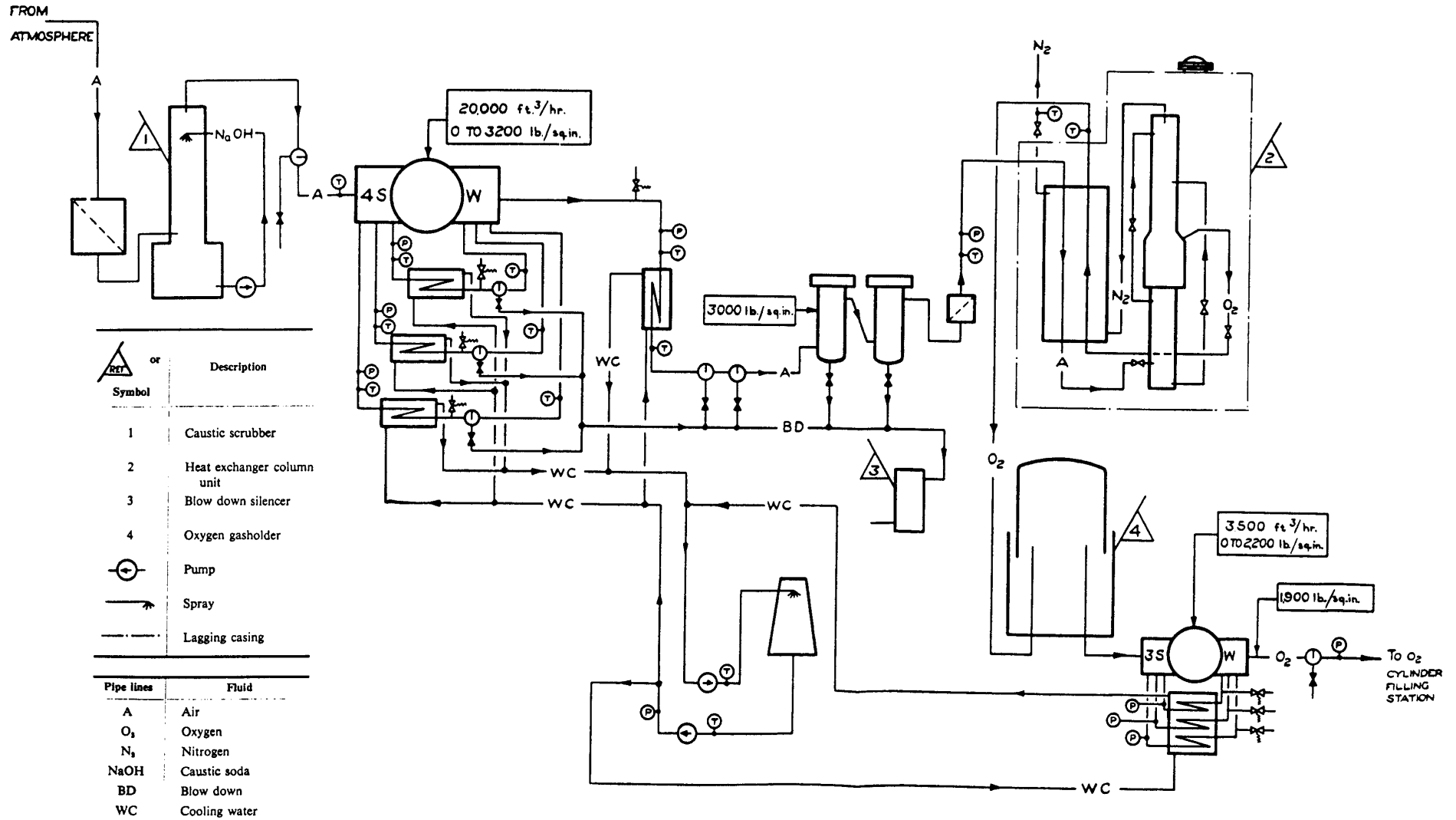
Details of electric control and alarm circuits to be given on separate diagram.  
 The electrical symbols used in this drawing are in accordance with B.S. 108.  
 For mechanical symbols see Parts 1 and 2 of B.S. 1553.

**Table of Code Letters**

AR	Alarm relay
AuxR	Auxiliary relay
C	Contactor
EB	Electric bell
F	Fuse adjustment valve
Fs	Fuse
L	Parallel slide valve
M	Motor.
OpC	Operating coil
P	Pressure gauge
SL	Signal Lamp
TS	Tumbler switch
2 SW	Two-stage water-cooled



### B. Oxygen-producing plant typical flow sheet



Symbol	Description
1	Caustic scrubber
2	Heat exchanger column unit
3	Blow down silencer
4	Oxygen gasholder
	Pump
	Spray
	Lagging casing

Pipe lines	Fluid
A	Air
O <sub>2</sub>	Oxygen
N <sub>2</sub>	Nitrogen
NaOH	Caustic soda
BD	Blow down
WC	Cooling water

## Index of symbols

- Aftercooler, 22B1  
Air-cooled compressor, two-stage, 21B1  
Air cooler, 22B1  
Air receiver, 22B5  
Angle valve, 22C4  
Axial-flow compressor, 21A3  
Bursting disk, 22C2  
Centrifugal compressor, 21A2  
Circulating-water cooler, 22B3  
Compressor, axial-flow, 21A3  
Compressor, centrifugal, 21A2  
Compressor, positive-displacement, 21A4  
Compressor, reciprocating, 21B1  
Compressor, two-stage air-cooled, 21B1  
Compressor, rotary, 21A1  
Cooler, air, 22B1  
Cooler, after-, 22B1  
Cooler, circulating-water, 22B3  
Cooler, intermediate-stage, 22B1  
Cooler, multi-stage, 22B2  
Cooler, two-stage 22B2  
Disk, bursting, 22C2  
Drier, 22B4  
Filter, 22A2  
Fusible plug, 22C1  
Intermediate-stage cooler, 22B1  
Multi-stage cooler, 22B2  
Plug, fusible, 22C1  
Positive-displacement compressor, 21A4  
Receiver, air, 22B5  
Reciprocating compressor, 21B1  
Rotary compressor, 21A1  
Separator, 22A1  
Strainer, 22A2  
Two-stage air-cooler compressor, 21B1  
Two-stage cooler, 22B2  
Valve, 22C3  
Valve, angle, 22C4

---

# British Standards

The following are available on application:

## YEARBOOK

Including subject index and numerical list of British Standards

## SECTIONAL LISTS

Aerospace materials and components (SL 25)  
Agricultural, dairying and allied interests (SL 31)  
Automobile (SL 34)  
Building (SL 16)  
Chemical engineering (SL 5)  
Chemicals, fats, glues, oils, soaps, etc. (SL 4)  
Cinematography and photography (SL 1)  
Coal, coke, mining and colliery requisites (SL 13)  
Codes of Practice (SL 8)  
Consumer goods (SL 3)  
Documentation, including Universal Decimal Classification (SL 35)  
Drawing practice (SL 37)  
Electrical engineering (power, electronics, telecommunications, acoustics, illumination, domestic appliances) (SL 26)  
Furniture, bedding and furnishings (SL 11)  
Gardening, horticulture and landscape work (SL 41)  
Gas and solid fuel and refractories (SL 2)  
Glassware, excluding laboratory apparatus (SL 39)  
Heating, ventilating and air conditioning (SL 42)  
Hospital equipment (SL 18)  
Industrial instruments, etc. (SL 17)  
Iron and steel (SL 24)  
Laboratory apparatus (SL 23)  
Leather, plastics, rubber (SL 12)  
Local authority purchasing officers' guide (SL 28)  
Machine tools) SL 20)  
Mechanical engineering (SL 6)  
Nomenclature, symbols and abbreviations (SL 29)  
Non-ferrous metals (SL 19)  
Nuclear energy (SL 36)  
Packaging and containers (SL 15)  
Paints, varnishes, paint ingredients and colours for paints (SL 9)  
Paints, varnishes and paint-materials (SL 9)  
Petroleum industry (SL 38)  
Printing and stationery, paper and board (SL 22)  
Road engineering (SL 32)  
Safety equipment (SL 30)  
Shipbuilding (SL 40)  
Textiles and clothing (SL 33)  
Welding (SL 7)

---

# 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.

## Revisions

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

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

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

## Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

## Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

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 Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

## Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained.

If permission is granted, the terms may include royalty payments or a licensing agreement. Details and advice can be obtained from the Copyright Manager. Tel: 020 8996 7070.

BSI  
389 Chiswick High Road  
London  
W4 4AL