Rules for the structure and drafting of UK standards

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Contents

Foreword

Publishing information

This document is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 November 2022. It was prepared on behalf of the BSI Standards Policy and Strategy Committee.

Supersession

This document supersedes *Rules for the structure and drafting of UK standards:2017*, which is withdrawn.

Relationship with other publications

This document gives the drafting rules referred to in BS 0:2021, PAS 0:2022 and BSI Flex 0 v2.0:2022-08.

Information about this document

This document gives rules for the structure and drafting of standards developed within the UK.

This document is an adoption of the ISO/IEC Directives, Part 2:2021, with modifications to alter, clarify or extend some of its provisions for easier, clearer use in the UK. Examples from the ISO/IEC Directives, Part 2:2021 have been retained as far as is practicable.

Reproduction of material derived from the ISO/IEC Directives is by kind permission of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).

This is a full revision of the document and introduces the following principal changes:

a) general: expansion of scope to cover all UK standards, including PAS and BSI Flex, and changes made to bring the content into line with the ISO/IEC Directives, Part 2:2021, BS 0:2021, PAS 0:2022 and BSI Flex 0 v2.0:2022-08;

b) **6.5**: introduction of the notion of supplementary content (files or data accessible via URL);

c) **7.1**: clarification that the expression of provisions is to be limited to the verbal forms defined in Table 3;

d) **7.4**: clarification that negative permissions are no longer permitted;

e) **8.6**: addition of a new subclause on inclusive terminology;

f) **8.7**: addition of a new subclause on general use of language (including deprecated phrases);

g) Clause **9**: general review and reorganization of the content;

h) **9.2**: permission of an alternative representation of numbers, symbols for variable quantities and numerical values for programming languages, pseudo-code and mark-up languages;

i) **24.2**: addition of a new table summarizing how to use notes, footnotes and commentaries within documents;

j) Clause **31**: admission of the inclusion of trademarks or trade names for reasons of public interest or public safety; and

k) Annex G: clearer distinction made between types of document (specification, code of practice, etc.) and types of standard (BS, PAS, etc.).

Presentational conventions

Content in this document that is identical to content in the ISO/IEC Directives, Part 2:2021 is presented in blue type.

Amended or additional content inserted for UK purposes is presented in black type.

Where text from the ISO/IEC Directives, Part 2:2021 has simply been omitted, this is not indicated.

The term “UK standard” is used throughout this document to cover all of the document types listed in the Scope. Where the form “this British Standard” is used in examples, this can be changed to “this part of BS XXXX”, “this PAS”, “this BSI Flex” or “this Published Document”, as appropriate.

Where examples in this document are taken from published standards, this is for the purposes of illustrating specific aspects of drafting, and words or phrases might be omitted in order to place the focus on the particular point being illustrated.

Section 1: Introductory clauses to the BSI drafting rules

0 Introduction

The BSI drafting rules state the general principles by which UK standards are drafted and stipulate certain rules to be applied in order to create content that is clear, precise and unambiguous. These rules enable each document to contribute effectively to the consistent and interdependent body of knowledge that BSI produces.

It is recognized that the ever-increasing range of subject matter covered by BSI reflects an increasingly diverse range of users of its documents, both geographical and in terms of the level and type of technical expertise that users can be expected to have. Those drafting BSI documents are advised to be aware of the particular needs of their intended users and to write in a style that is likely to be readily understood. It is particularly important to be conscious of the likelihood that a document will be translated if it is later used as the basis for a European or international standard.

Advice on applying the BSI drafting rules is readily available from the BSI Content Development team.

1 Scope

This document gives principles and rules for the structure and drafting of UK standards.

It covers:

a) British Standards of UK origin (as defined in BS 0:2021);

b) PAS standards (as defined in PAS 0:2022);

c) BSI Flex standards (as defined in BSI Flex 0 v2.0:2022-08);

d) Published Documents; and

e) National Annexes and non-contradictory complementary information (NCCI) to Eurocodes.

It also gives some guidance with regard to presentation.

This document does not specify the typography and layout of published documents, which are determined by BSI house style.

NOTE The typography and layout of UK standards, together with BSI-approved standard wording, are given in a series of separately published style guides ([1] to [3]).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document[1)]. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 0:2021, *A standard for standards – Principles of standardization*

BS EN 60027 (all parts), *Letter symbols to be used in electrical technology*

BS EN 61082-1, *Preparation of documents used in electrotechnology – Part 1: Rules*

BS EN 61175, *Industrial systems, installation and equipment and industrial products – Designation of signals*

[1)] Documents that are referred to solely in an informative manner are listed in the Bibliography.

BS EN 80000 (all parts), *Quantities and units*

BS EN 81346 (all parts), *Industrial systems, installations and equipment and industrial product – Structuring principles and reference designations*

BS EN IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

BS EN ISO 128-3, *Technical product documentation – General principles of representation – Part 3: Views, sections and cuts*

BS EN ISO 3098 (all parts), *Technical product documentation – Lettering*

BS EN ISO 6433, *Technical drawings – Item references*

BS EN ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

BS EN ISO 9001, *Quality management systems – Requirements*

BS EN ISO 80000 (all parts), *Quantities and units*

BS EN ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories*

BS ISO 78-2, *Chemistry – Layout for standards – Part 2: Methods of chemical analysis*

BS ISO 128-30, *Technical drawings – General principles of presentation – Part 30: Basic conventions for views*

BS ISO 690, *Information and documentation – Guidelines for bibliographic references and citations to information resources*

BS ISO 7001, *Graphical symbols – Public information symbols*

BS ISO 10241-1, *Terminological entries in standards – General requirements and examples of presentation*

BS ISO 14617 (all parts), *Graphical symbols for diagrams*

BS ISO 80000 (all parts), *Quantities and units*

BSI Flex 0 v2.0:2022-08, *Principles of BSI Flex standardization*

IEC 60417, *Graphical symbols for use on equipment* [2)]

IEC 60617, *Graphical symbols for diagrams* [3)]

ISO 497, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*

ISO 7000, *Graphical symbols for use on equipment – Index and synopsis*

ISO/IEC Directives, Part 1, Consolidated ISO Supplement, *Procedures for the technical work – Procedures specific to ISO*

ISO/IEC Directives, Part 2:2021, *Rules for the structure and drafting of International Standards*

ITSIG specification for the preparation and exchange of graphics, ISO

PAS 0:2022, *Principles of PAS standardization*

[2)] Available as an online database at http://www.graphical-symbols.info/equipment.

[3)] Available as an online database at http://std.iec.ch/iec60617.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in BS 0:2021 and the following apply.

3.1 Document type

3.1.1 document
UK standard draft or publication

NOTE The term "UK standard" covers British Standards of UK origin (as defined in BS 0:2021), PAS standards (as defined in PAS 0:2022), BSI Flex standards (as defined in BSI Flex 0 v2.0:2022-08), Published Documents, and National Annexes to Eurocodes.

3.1.2 standard
document (**3.1.1**), established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context

NOTE Standards are based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.

[SOURCE: ISO/IEC Guide 2:2004, **3.2**]

3.1.3 specification
standard that sets out detailed requirements, to be satisfied by a product, material, process, service or system, and the procedures for verifying conformity to these requirements

3.1.4 code of practice
standard that comprises recommendations for accepted good practice as followed by competent and conscientious practitioners, and that brings together the results of practical experience and acquired knowledge for ease of access and use of the information

3.1.5 guide
standard that gives broad and general information about a subject, with background information where appropriate

NOTE Guides issued as UK standards are different from Guides issued by ISO/IEC.

3.1.6 test method
standard that gives a complete account of the way in which an activity is performed (and, where appropriate, of the materials and equipment required to perform it), and the way in which conclusions are reached, to a degree of precision appropriate to the stated purpose

3.1.7 method of specifying
standard that gives the characteristics of a product, material, process or system from which selection has to be made and for which values might have to be agreed between purchaser and manufacturer

3.1.8 vocabulary
standard that lists definitions of terms used in a particular sector, field or discipline

3.1.9 classification
standard that comprises designations and descriptions of different grades of a product, and that identifies and arranges data in hierarchical order

3.2 Element

3.2.1 normative element
element that describes the scope of the document (**3.1.1**) or sets out provisions (**3.3.1**)

3.2.2 informative element
element intended to assist the understanding or use of the document (**3.1.1**) or that provides contextual information about its content, background or relationship with other documents

3.2.3 mandatory element
element that has to be present in a document (**3.1.1**)

EXAMPLE The Scope is an example of a mandatory element.

3.2.4 conditional element
element that is present depending on the provisions (**3.3.1**) of the particular document (**3.1.1**)

EXAMPLE The symbols and abbreviated terms subclauses are examples of a conditional element.

3.2.5 optional element
element that the writer of a document (**3.1.1**) can choose to include or not

EXAMPLE The Introduction is an example of an optional element.

3.3 Provisions

3.3.1 provision
expression in the content of a document (**3.1.1**) that takes the form of an instruction (**3.3.9**), a recommendation (**3.3.4**) or a requirement (**3.3.3**)

NOTE 1 These types of provision are distinguished by the form of wording they employ; e.g. instructions are expressed in the imperative mood, recommendations by the use of the auxiliary verb "should" and requirements by the use of the auxiliary verb "shall".

NOTE 2 Normative provisions take different forms according to the type of standard. The provisions of the most common types of standard are:

- *requirements, in a specification;*
- *recommendations, in a code of practice; and*
- *instructions, in a test method.*

[SOURCE: ISO/IEC Guide 2:2004, **7.1**, modified – "normative" deleted and Note 2 added]

3.3.2 statement
expression, in the content of a document (**3.1.1**), that conveys information

*NOTE Table 3 gives the verbal forms for indicating statements of permission (**3.3.5**), possibility (**3.3.6**) and capability (**3.3.7**).*

3.3.3 requirement
expression, in the content of a document (**3.1.1**), that conveys objectively verifiable criteria to be fulfilled and from which no deviation is permitted if compliance with the document is to be claimed

NOTE Requirements are expressed using the verbal forms given in Table 3.

3.3.4 Recommendations

3.3.4.1 recommendation
<in a specification or test method> expression, in the content of a document (**3.1.1**), that conveys a suggested possible choice or course of action deemed to be particularly suitable without necessarily mentioning or excluding others

NOTE 1 Recommendations are expressed using the verbal forms given in Table 3.

NOTE 2 In the negative form, a recommendation is the expression that a suggested possible choice or course of action is not preferred but it is not prohibited.

3.3.4.2 recommendation
<in a code of practice> expression, in the content of a document (**3.1.1**), that conveys criteria to be fulfilled if compliance with the document is to be claimed, but from which deviation might be permitted if it can be justified by the user

NOTE Recommendations are expressed using the verbal forms given in Table 3.

3.3.4.3 recommendation
<in a guide> expression, in the content of a document (**3.1.1**), that conveys advice

NOTE Recommendations are expressed using the verbal forms given in Table 3.

3.3.5 permission
expression, in the content of a document (**3.1.1**), that conveys consent or liberty to do something

NOTE Permissions are expressed using the verbal forms given in Table 3.

3.3.6 possibility
expression, in the content of a document (**3.1.1**), that conveys expected or conceivable material, physical or causal outcome

NOTE Possibility is expressed using the verbal forms given in Table 3.

3.3.7 capability
expression, in the content of a document (**3.1.1**), that conveys the ability, fitness, or quality necessary to do or achieve a specified thing

NOTE Capability is expressed using the verbal forms given in Table 3.

3.3.8 external constraint
constraint or obligation on the user of the document (**3.1.1**) (e.g. legal requirements) that is not stated as a provision (**3.3.1**) of the document

3.3.9 Instructions

3.3.9.1 instruction
<in a specification or test method> expression, in the content of a document (**3.1.1**), that conveys an objectively verifiable task to be undertaken and from which no deviation is permitted if compliance with the document is to be claimed

3.3.9.2 instruction
<in a code of practice> expression, in the content of a document (**3.1.1**), that conveys a task to be undertaken

3.4 state of the art
developed stage of technical capability (**3.3.7**) at a given time as regards products, processes and services, based on the relevant consolidated findings of science, technology and experience

[SOURCE: ISO/IEC Guide 2:2004, **1.4**]

Section 2: General principles

4 Objective of standardization

The objective of documents (as defined in **3.1.1**) is to give clear and unambiguous provisions in order to achieve the purposes set out in BS 0:2021, **4.1.2**, PAS 0:2022, **4.1.2** and BSI Flex 0 v2.0:2022-08, **4.1.2**. To achieve this objective, documents should:

- be complete within the limits specified by their scope;

  *NOTE 1 When a document provides requirements or recommendations, these are either written explicitly, or made by reference to other documents (see Clause **10**).*

- be consistent, clear and accurate;
- be written using all available knowledge about the state of the art;
- take into account the current market conditions;

  NOTE 2 There is sometimes a tension between what is technically feasible and what the market actually requires and is prepared to pay for.

- provide a framework for future technological development;
- be comprehensible to qualified people who have not participated in their preparation; and
- conform to the BSI *Rules for the structure and drafting of UK standards*.

A document does not in itself impose any obligation upon anyone to follow it. However, an obligation can be imposed, for example, by legislation or by a contract which makes reference to the document.

A document should not include contractual requirements (e.g. concerning claims, guarantees, covering of expenses), or legal or statutory requirements.

UK standards are intended for use in the UK in the first instance. However, it is good practice for a UK standard to be drafted as far as possible to make it also usable outside the UK, particularly if there is an intention to propose it as the basis for a future European or international standard.

5 Principles

5.1 Planning and preparation

Rules for the planning and preparation of new work items are given in BS 0:2021, PAS 0:2022 and BSI Flex 0 v2.0:2022-08.

The rules given in the relevant governance document (BS 0:2021, PAS 0:2022 or BSI Flex 0 v2.0:2022-08) and the BSI *Rules for the structure and drafting of UK standards* should be applied throughout all stages of drafting to avoid delay. In order to facilitate the timely publication of a document or of a series of associated documents, the following should be determined before drafting begins:

- the intended structure;
- any interrelationships; and
- the organization and subdivision of the subject matter (see Clause **6**).

In the case of a multipart series, a list of the intended parts should be drawn up (preferably including their titles and scopes).

Annex E gives some brief guidance on the different methods of updating standards.

5.2 Aim-oriented approach

It is not always necessary or possible to standardize all characteristics of an item or a subject. The choice of characteristics to be standardized depends on the aims of the document (e.g. health, safety, protection of the environment, interface, interchangeability, compatibility or interworking, and variety control). A functional analysis of the product can help to identify the characteristics to be included in the document.

It is permitted, but not necessary, to give an explanation for the inclusion of individual characteristics. More general background information can be given in the Introduction (see Clause **13**).

5.3 Fitness for implementation as a regional or national standard

Not applicable in the UK.

5.4 Performance principle

Whenever possible, requirements and recommendations should be expressed in terms of performance rather than design or descriptive characteristics. This principle allows maximum freedom for technical development and reduces the risk of undesirable market impacts (e.g. limiting development of innovative solutions).

EXAMPLE

Different approaches are possible in the specification of requirements concerning a table.

Design requirements: The table shall have four wooden legs.

Performance requirements: The table shall be constructed such that when subjected to … [stability and strength criteria].

When the performance principle is adopted, the content should be checked to verify that features relevant to the scope of the document are not inadvertently omitted from the performance requirements or recommendations.

If it is impossible to determine the necessary performance characteristics, the material or product may be specified. However, in such a case, the phrase "… or any other material or product proved to be equally suitable" should be included.

Requirements concerning the manufacturing process should usually be omitted in favour of tests to be carried out on the final product. There are, nevertheless, some fields in which reference to the manufacturing process is necessary (e.g. hot rolling, extrusion) or even in which an inspection of the manufacturing process is necessary (e.g. pressure vessels).

However, it is necessary to consider whether to specify by description or by performance because specification by performance can lead to complicated, costly and lengthy testing procedures.

5.5 Verifiability

Requirements should be precise and objectively verifiable. Only those requirements that can be verified should be included.

NOTE For a requirement to be objectively verifiable, it has to be possible to determine whether or not it has been met by a particular item or system. Requirements that can only be verified by observing the absence of breakdown or catastrophe once an item or system has been put into use do not constitute verifiable requirements.

Requirements cannot be left open to interpretation and are not negotiable. They have to be followed strictly and in their entirety in order to claim compliance with the document.

Phrases such as "sufficiently strong" or "of adequate strength" should not be used in requirements or instructions because they are subjective statements. They can be used in recommendations provided that they are qualified, e.g. "sufficiently strong to achieve…".

The stability, reliability or lifetime of a product should not be specified if no test method is known that can verify the claim in a reasonably short time. A guarantee by the manufacturer is not a substitute for such requirements. Guarantee conditions should not be included because they are commercial or contractual, rather than technical, in nature.

Recommendations do not need to be objectively verifiable in the same way as requirements, but it still has to be possible to determine whether the recommendations have been met.

5.6 Consistency

Consistency should be maintained within each document, and within a series of associated documents.

- The structure of associated documents and the numbering of their clauses should, as far as possible, be identical.
- Identical wording should be used to express identical provisions or supporting information.
- The same terminology should be used throughout. The use of synonyms should be avoided.
- A provision should not be undermined or contradicted by another provision or by a note. For example, it is not acceptable to specify something in a requirement and then go on to acknowledge that it might not be possible to meet that requirement, or to give a recommendation in the main text with an alternative in a note.

Consistency is particularly important to help the user understand documents or series of associated documents. It is also important when using automated text processing techniques.

The application of the BSI *Rules for the structure and drafting of UK standards* contributes to the overall objective of consistency. A checklist for writers and editors of documents is provided in Annex A.

5.7 Avoidance of duplication and unnecessary deviations

Documents should avoid duplication. This is particularly important in test methods, which are often applicable to more than one product, or type of product.

Before standardizing any item or subject, the writer should determine whether an applicable standard already exists. If it is necessary to invoke a provision that appears elsewhere, this should be done by reference, not by repetition (see Clause **10**).

Annex D provides reference documents and sources for drafting.

If a test method is, or is likely to be, applicable to two or more types of product, a document should be prepared on the method itself, and each document dealing with a given product should refer to it (indicating any modifications that are necessary). This will help to prevent unnecessary deviations.

If, in preparing a document related to a product, it is necessary to standardize some kind of testing equipment that is likely to be used for testing other products, it should be dealt with in a separate document, prepared in consultation with the committee dealing with such equipment.

As far as possible, the provisions for one item or subject should be confined to one document.

In some fields, it can be desirable to write a document specifying generic provisions applicable to a group of items or subjects.

If it is considered necessary to repeat a provision from an exterior source, its source should be referenced precisely (see **10.1**).

5.8 Accommodation of more than one product size

If the aim of a document is standardization of a single size for a product, but there is more than one accepted size in widespread use, a committee might decide to include alternative product sizes in a document. However, in such cases, every effort should be made to reduce the number of alternatives to a minimum, taking the following points into account:

a) the volume of trade in the sort of product involved should serve as a criterion for "widespread use"; and

b) only sizes that are likely to be in widespread use in the reasonably foreseeable future (e.g. five years or more) should be included in the document.

Whenever alternative solutions are to be adopted, they should all be included in the same document and preferences for the different alternatives should be provided. The reasons for the preferences should be explained in the Introduction.

When agreed by the committee, a transitional period may be indicated during which the use of non-preferred values is permitted.

5.9 Characteristics not specified in a document

In some cases, a document may list characteristics that can be chosen freely by the supplier. The characteristics chosen should be stated, for example on a nameplate, label or accompanying document.

For most kinds of complex item, it is impractical to specify exhaustive performance requirements. Instead, it is preferable to require that the item be supplied with a list of performance data.

This approach is not acceptable in the case of health and safety requirements.

Documents listing characteristics for which suppliers or purchasers are required to state values or other data not specified by the document should specify how such values are to be measured and stated.

5.10 Audience

A document should be written in such a way that its provisions can be undertaken by its intended users. This is particularly important in a product specification, which is normally aimed at a single party (commonly a manufacturer) who might need to be able to claim compliance with the document. For example, a specification that is intended for use by the manufacturer of a product cannot specify requirements or give recommendations for actions to be carried out by the purchaser or user of the product, as this would be outside the manufacturer's control.

If it is considered necessary for information to be given to someone who is not expected to be the main user of the document, this can be done in one of two ways. In a product specification, information and guidance on the use of a product, for example, can be given in an informative annex. Alternatively, an instruction to provide such information should be presented in the form of "information to be supplied to the user", thus bringing it back within the control of the intended user of the document. This could be done in the form of a requirement, e.g. "the following information shall be supplied with the product", or an advisory statement, e.g. "it can be useful for the following information to be supplied with the product".

In a document that refers to the interface between two or more different parties, e.g. manufacturer and purchaser, the provisions should be directed at only one party. For example, in a specification where the manufacturer has to obtain details from another party, the text should say "the following information shall be obtained" and not "the following information shall be provided", as the manufacturer is able to comply with the former requirement but not the latter.

In order to facilitate implementation by users, who might include not only manufacturers and purchasers but also certification bodies, testing laboratories and regulatory authorities who might wish to make reference to standards, the aspects of a product which are of separate interest to the various parties should be clearly distinguished, either in separate clauses of the document or, preferably, in separate documents or parts of a document. Such a distinction should be made, for example, between:

- health and safety requirements;
- performance requirements;
- maintenance and service requirements; and
- installation rules.

In a document that is intended for use by a number of different parties, e.g. a code of practice aimed at designers, manufacturers, installers, testers and maintainers, it can be useful to divide the document into clauses and/or sections that are each aimed at a different audience.

5.11 Health, safety and environment

If health, safety, the protection of the environment or the economical use of resources are relevant to the product, appropriate requirements should be included.

These requirements might need to have certain characteristics with limiting values (maximum and/or minimum) or closely defined sizes and, in some cases, even constructional stipulations (for example, to achieve non-interchangeability for safety reasons). The levels at which these limits are fixed should be such that the element of risk is reduced as much as practicable.

Documents may, when relevant, specify technical requirements for packaging and conditions of storage and transportation of the product, either to prevent hazards, contamination or pollution arising from inadequate packaging, or to protect the product.

Aspects such as requirements dealing with health and safety (see ISO/IEC Guide 51 and IEC Guide 104) and requirements dealing with the environment (see ISO Guide 64 and IEC Guide 106), which could form part of governmental regulations, or standards made mandatory, should receive priority when preparing a document. To facilitate the principle of reference to standards in governmental regulations (see ISO/IEC Guide 15), the relevant aspects should be published in a separate document or a separate part of a document. When, however, such a separation is impracticable, such aspects should be grouped together in one clause of the document.

Environmental requirements are usually covered by governmental regulations rather than BSI standards, although there are exceptions, particularly in the electrotechnical field.

However, the corresponding test methods should, where appropriate, be standardized. BS EN ISO 14040 and BS EN ISO 14044 provide procedures for the assessment of the environmental aspect of a product or process.

6 Organization and subdivision of the subject matter

6.1 Names of the main subdivisions

The terms that should be used to designate the divisions and subdivisions of subject matter are given in Table 1.

NOTE *More detailed examples of numbering are given in* ***22.3.2****.*

Table 1 – Names of divisions and subdivisions

Term	Example of numbering
Identifier	BS 8300
Part	BS 8300-1
Clause	1
Subclause	1.1
Subclause	1.1.1
Paragraph	[no number]
Annex	A

6.2 Subdivision into documents

Each document should have a unique identifier, following the conventions given in Annex F.

Documents are so diverse that no universally acceptable rules can be established for the subdivision of the subject matter.

However, as a general principle, an individual document should be prepared for each subject to be standardized, and published either as a single standard or a single part of a series.

EXAMPLE 1 Examples of reasons for the subdivision into parts under the same number are:
- the document is likely to become too long;
- subsequent parts of the content are interlinked;
- portions of the document are referred to in regulations; and
- portions of the document are intended to serve for certification purposes.

Such subdivision has the advantage that each part can be revised separately as necessary.

In particular, the aspects of a product that are of separate interest to different parties (e.g. manufacturers, certification bodies, legislative bodies or other users) should be clearly distinguished, preferably as parts of a document or as individual documents.

EXAMPLE 2 Examples of such individual aspects are:
- health and safety requirements;
- performance requirements;
- maintenance and service requirements;
- installation rules; and
- quality assessment.

6.3 Subdivision of the subject matter within a series of parts

There are two main ways of subdividing subject matter within a series of parts.

a) Each part deals with a specific aspect of the subject and can stand alone.

EXAMPLE 1
Part 1: Vocabulary
Part 2: Requirements
Part 3: Test methods
Part 4: …

EXAMPLE 2

Part 1: Vocabulary
Part 2: Harmonics
Part 3: Electrostatic discharge
Part 4: …

b) There are both common and specific aspects to the subject. The common aspects should be given in Part 1. Specific aspects (which can modify or supplement the common aspects and therefore cannot stand alone) should be given in separate individual parts.

EXAMPLE 3

Part 1: General requirements
Part 2: Thermal requirements
Part 3: Air purity requirements
Part 4: Acoustical requirements

EXAMPLE 4

Part 1: General requirements
Part 2: Particular requirements for electric irons
Part 3: Particular requirements for spin extractors
Part 4: Particular requirements for dishwashers

Where the system described in b) is used, the references from one part to another should be checked for validity. There are two ways of achieving this.

- If reference is made to a particular element, the reference should be dated (see **10.5**).
- The committee or panel responsible should validate the references at the time of review of the document.

Each part of a multipart series should be drafted in accordance with the same rules as those for an individual document.

The number of a part should be in Arabic numerals, normally starting with 1, following the document number and preceded by a hyphen.

EXAMPLE 5 BS 8300-1, BS 8300-2

Subdivision of parts is permitted in exceptional cases. Such subdivision, as in Example 6, is not to be confused with the now discontinued practice in BSI of issuing standards in separately published sections and subsections.

EXAMPLE 6

Part 1-1: Code of practice for planning, design, construction and maintenance of structures set in the maritime environment – General recommendations

Part 1-2: Code of practice for planning, design, construction and maintenance of structures set in the maritime environment – Actions

Part 1-3: Code of practice for planning, design, construction and maintenance of structures set in the maritime environment – Geotechnics

Part 2: Code of practice for the design of quay walls, jetties and dolphins

If a document is subdivided in a number of separate parts, the first part should include an explanation of the intended structure in its Introduction. When developing a series, it can be advisable to reserve Part 1 for general aspects such as a vocabulary (see **11.5.2**).

In the Foreword to each part in the series, a reference should be made to the titles of all other parts that have been or are planned to be published.

6.4 Subdivision of the subject matter within an individual document

An example of a typical arrangement is given in Table 2.

Table 2 – Overview of the major subdivisions of a document and their arrangement in the text

Major subdivision	Mandatory/Optional/Conditional	Permitted content
Title	Mandatory	Identifier Title
Table(s) of content	Mandatory[A), B)]	Text
Foreword	Mandatory[C)]	Text Figures/tables Notes Footnotes
Introduction	Optional/Conditional[D)]	Text Figures/tables Notes Footnotes
Scope	Mandatory	Text Figures/tables Notes Footnotes
Normative references	Mandatory[E)]	References Footnotes
Terms and definitions	Mandatory[E)]	Text Figures/tables Notes Footnotes
Symbols and abbreviated terms	Conditional	Text Figures/tables Notes Footnotes
Main technical content	Mandatory/Optional/Conditional	Text Figures/tables Notes/commentary Footnotes
Annexes	Optional	Text Figures/tables Notes/commentary Footnotes
Bibliography	Conditional	References Footnotes
Indices	Optional	Index Notes Footnotes

A) Except in National Annexes to Eurocodes, which only have a table of contents if the document is particularly long and/or complex.

B) These usually include a list of major subdivisions of the document and lists of figures, tables and similar numbered elements.

C) Except in National Annexes to Eurocodes.

D) See **13.3**.

E) When no normative references or terms are listed, use the introductory texts provided in **15.5.2** and **16.5.3**.

Clauses within a single document should be structured in a logical order, taking account of the way in which the document is likely to be used. The clause structure should be as consistent as possible within a series of related documents or parts.

Document types with particular conventions include the following.

- Codes of practice are typically structured in the order in which actions are carried out (e.g. design, construction, testing, maintenance).
- Test methods are structured as set out in Clause **18**.
- In a vocabulary, the organization and structure of terminological entries should generally be in accordance with BS ISO 10241-1, although its relationship with other standards or the nature of its subject might make a different numbering system or structure preferable. The overriding principle should be one of usability.

6.5 Supplementary content

Certain documents contain supplementary material that is best provided in electronic formats, which differs from that of the main content.

EXAMPLE 1 Data sets, code components.

If supplementary content is needed, advice should be sought from BSI as to how best to provide it.

NOTE For example, supplementary content could be provided as a download, with a URL and password given in the text.

Supplementary content should only be provided in this way if it cannot reasonably be included in the main body of the text.

Each item of supplementary content should be explicitly referred to within the text in order to explain its context and use.

EXAMPLE 2

"The conformance bitstreams are provided at:

https://standards.iso.org/iso-iec/23008/-8/ed-2/en"

EXAMPLE 3

"An electronic, editable version of the template is available online at https://documentportal.bsigroup.com using access code [password]."

7 Verbal forms for expressions of provisions

7.1 General

The user of the document should be able to identify the provisions that they are obliged to satisfy in order to claim compliance with a document. The user should also be able to distinguish these provisions from other types of content (recommendations in a specification, permissions, possibilities and capabilities).

It is essential to follow rules for the use of verbal forms so that a clear distinction can be made between requirements, recommendations, permissions, possibilities and capabilities. Verbal forms should be used in the form appropriate to the nature of the document, as shown in Table 3. To avoid risk of misinterpretation, verbal forms that are not defined in Table 3 should not be used for the expression of provisions.

Table 3 – Verbal forms

Verbal form	Implication	Typical context
shall	requirement (see **7.2**)	normative element of a specification or test method do not use anywhere in a code of practice or guide do not use in Foreword, Introduction or Scope in any document
should	recommendation (see **7.3**)	normative element of a code of practice informative element of a specification, test method or guide[A)] do not use in Foreword, Introduction or Scope in any document
may	statement of permission (see **7.4**) (within the stated limits of a document, to adopt a particular course of action)	informative element of any document do not use in normative text in any document[B)] do not use in Foreword, Introduction or Scope in any document
can	statement of possibility and capability (see **7.5**)	informative element of any document do not use in normative text in any document[B)]
might	statement of possibility (see **7.5**)	informative element of any document do not use in normative text in any document[B)]
is	description (see **7.7**)	normative element of a test method informative element of any document
will	ambiguous (see **7.8**)	informative element of any document (avoid where possible) do not use in normative text in any document[B)]
must	ambiguous (see **7.6** and **7.8**)	do not use in any document

[A)] Recommendations in a guide are considered to be an informative element because they are only advisory.

[B)] These verbal forms can be used in the main text in a guide, as guides do not contain normative text.

In addition to using the appropriate verbal forms for requirements, recommendations and statements, their use is determined by the type of document, as given in Annex G.

The wording “conform to” should be used in provisions that require a characteristic of a product, material, process, service or system to be in accordance with a document or its requirements. The wording “comply with” should be used in provisions that relate to the action of a person or an organization in enabling conformity to be achieved. In essence, people comply; things conform.

7.2 Requirements

A definition of "requirement" is given in **3.3.3**.

The verbal form "shall", as shown in Table 3, should be used to express requirements.

EXAMPLE 1
Connectors shall conform to the electrical characteristics specified in IEC 60603-7-1.

The imperative mood is frequently used to express requirements in procedures or test methods.

EXAMPLE 2
Switch on the recorder…

Do not use "must" as an alternative for "shall". This avoids confusion between the requirements of a document and external constraints (see **7.6**).

Do not use "may not" instead of "shall not" to express a prohibition.

7.3 Recommendations

Definitions of "recommendation" are given in **3.3.4**. Recommendations are defined differently depending on the type of standard in which they appear.

The verbal form "should", as shown in Table 3, should be used to express recommendations.

EXAMPLE 1 (a note in a specification)
NOTE *Wiring of these connectors should take into account the wire and cable diameter of the cables defined in the IEC 61156 series.*

EXAMPLE 2 (a provision in a code of practice)
Processes should be determined for maintenance and testing of fire safety systems.

7.4 Permission

A definition of "permission" is in **3.3.5**.

The verbal form "may", as shown in Table 3, should be used to express permission.

EXAMPLE 1
IEC 60512-26-100 may be used as an alternative to IEC 60512-27-100 for connecting hardware that has been previously qualified to IEC 60603-7-3:2010.

EXAMPLE 2
Within an EPB document, if the quantity is not passed to other EPB documents, one or more of the subscripts may be omitted provided that the meaning is clear from the context.

Do not use "possible" or "impossible" in this context.

Do not use "can" instead of "may" in this context.

Do not use "might" instead of "may" in this context.

"May" signifies permission expressed by the document, whereas "can" refers to the ability of a user of the document or to a possibility open to them, and "might" refers to the possibility of an event occurring.

Negative permissions are ambiguous and should not be used. Rather than using negative permissions, either rewrite the sentence to state what is permitted, or rewrite as a requirement/recommendation not to do something.

7.5 Possibility and capability

Definitions of “possibility” and “capability” are given in **3.3.6** and **3.3.7**.

The verbal forms “can” and “might”, as shown in Table 3, should be used to express possibility and capability.

EXAMPLE 1
Use of this connector in corrosive atmospheric conditions can lead to failure of the locking mechanism.

EXAMPLE 2
These measurements can be used to compare different sprayer setups on the same sprayer.

EXAMPLE 3
The sum over time can be related either to consecutive readings or to readings on different time slots (e.g. peak versus off-peak).

EXAMPLE 4
Where it might not be reasonable to expect all contractors to understand the needs of the fire safety strategy or take responsibility for them, it might be necessary to develop procedures to integrate different trades.

Do not use “may” instead of “can” or “might” in this context.

“May” signifies permission expressed by the document, whereas “can” refers to the ability of a user of the document or to a possibility open to them, and “might” refers to the possibility of an event occurring.

EXAMPLE 5

Correct:	“might require”, “might be applicable”, “can be regarded”
Incorrect:	“may require”, “may be applicable”, “may be regarded”

NOTE The phrase “may require” is acceptable in the context of a provision for the creation of another document.

7.6 External constraint

A definition of “external constraint” is given in **3.3.8**.

External constraints are not requirements of the document. They are given for the information of the user.

Do not use “must” as an alternative for “shall”. This avoids confusion between the requirements of a document and external constraints (see **7.2**). External constraints should be worded in such a way as to negate the need to use “must”.

EXAMPLE

Correct:	European legislation requires opaque eye protection to be worn in these environments.
Incorrect:	European legislation states that opaque eye protection must be worn in these environments.

7.7 Present tense

The present tense (“is”) may be used to express normative provisions in the apparatus clause in a test method, but in all other standards it should be used only in informative text.

*NOTE This is not the same as the imperative mood, which is covered in **7.2**.*

7.8 Verbal forms to be avoided

Do not use “must” as an alternative for “shall” or “should” (see **7.2** and **7.6**).

The auxiliary verb “will” should be avoided as it can be ambiguous. It should, as a general rule, be replaced by an alternative form of wording that avoids the future tense (standards cannot predict the future) and makes the meaning absolutely clear.

EXAMPLE

The phrase “A will depend on B” might mean either:

- A *does* depend on B – in which case a simple “A depends on B” is sufficient; or
- A *is expected to* depend on B, at some unspecified point in the future – in which case when, and why, and under what circumstances?

8 Language, spelling, abbreviated terms, style and basic reference works

8.1 Language versions

Not applicable in the UK.

8.2 Spelling reference works

Spelling should be consistent throughout a document.

Other than in the case of “sulfur”, spelling should be in the form given in *the Shorter Oxford English Dictionary* [4]. Technical terms that do not appear in that dictionary should be in the form given in the *Chambers Dictionary of Science and Technology* [5].

In the case of “sulfur” (and its derivatives), the International Union of Pure and Applied Chemistry (IUPAC) spelling should be used.

If the dictionary gives more than one form of spelling, the form that is given first should be used.

8.3 Spelling and abbreviated forms of names of organizations

The names of organizations, and their abbreviated forms, should be written as used by those organizations.

8.4 Abbreviated terms

The use of abbreviated terms should be consistent throughout the document.

The first time that an abbreviated term is used in the document, the full term should be given with the abbreviated term following in brackets, regardless of whether a list of abbreviated terms is provided (see Clause **17**).

EXAMPLE 1 …the weighted root mean square (RMS) width of the active output interface optical spectrum….

Any abbreviated term used in the Scope should be spelled out in full, even if it has previously appeared in the Foreword or Introduction, so that the Scope is self-contained.

NOTE With the exception of the Scope, an abbreviated term, once defined, does not need to be spelled out again in subsequent clauses or sections.

An abbreviated term should be specified only if used subsequently in the document. Any abbreviated term should be in upper case letters, without a full stop after each letter.

EXAMPLE 2 “RH” for “relative humidity”.

Occasionally, abbreviated terms in common use are written differently, either for historical or for technical reasons.

Technical specifications regarding marking may impose other requirements.

When a sentence begins with an abbreviated term, the term should be spelled out in full, unless it is the preferred or commonly recognized abbreviated form of the name of an organization.

8.5 Linguistic style

To help users understand and use the document correctly, the linguistic style should be as simple and concise as possible.

8.6 Inclusive terminology

Whenever possible, inclusive terminology should be used to describe technical capabilities and relationships. Insensitive, archaic and non-inclusive terms should be avoided. For the purposes of this principle, "inclusive terminology" means terminology perceived or likely to be perceived as welcoming by everyone, regardless of their sex, gender, race, colour, religion, etc.

New documents should be developed using inclusive terminology. As feasible, existing and legacy documents should be updated to identify and replace non-inclusive terms with alternatives that are more descriptive and tailored to the technical capability or relationship.

Gender-specific language should be avoided (see **8.6**).

EXAMPLE	
Correct:	Incorrect:
"they", "theirs"	"he or she", "his or hers"
"resources"	"manpower"
"work hours", "working hours", "hours"	"man-hours"
"artificial", "manufactured", "synthetic", "machine-made"	"man-made"
"firefighter"	"fireman"

8.7 General use of language

The general wording of a document should be in terms that are in common use or self-explanatory.

Technical terms should be used in the sense defined in an appropriate dictionary (see **8.2**) or, if used in a special sense, included in the terms and definitions clause (see Clause **16**).

Archaic or colloquial terms should not be used. Judgement needs to be exercised in the use of terms that might be considered to be neologisms or jargon.

References to considerations of monetary cost and expense should be avoided.

Phrases that are unclear, ambiguous, unverifiable or otherwise meaningless should not be used. These include:

- "the user shall/should understand", "the user shall/should remember", etc.;
- "shall/should be noted", "shall/should be recognized", etc.;
- "shall/should consider", "shall/should be considered", etc.;
- "shall/should apply", "shall/should be required", etc.;
- "the user shall/should ensure", "the user shall/should prove", etc.;
- "xxx shall/should be referred to", "reference shall/should be made to", etc.; and
- "fit for purpose".

NOTE This list is not exhaustive. No phrase is acceptable if its use would contravene any of the explicit drafting rules.

Phrases such as “it is essential that”, “it is important that”, etc. can be a sign of a hidden provision. Such phrases should not be used for the expression of provisions (see **7.1**), and should be avoided in informative text as they could cause confusion.

9 Numbers, quantities, units and values

9.1 Representation of numbers and numerical values

The decimal sign should be a full stop, except in Eurocode-related publications, in which it should use the same sign as given in the Eurocode (usually a comma).

If the magnitude (absolute value) of a number less than 1 is written in decimal form, the decimal sign should be preceded by a zero.

EXAMPLE 1 0.001

Each group of three digits should be separated by a small space from the preceding digits, counting from the decimal sign. When there is no decimal sign, the counting should be from the rightmost digit towards the left. The separation into groups of three digits also applies to digits following the decimal sign. This does not apply to binary and hexadecimal numbers, numbers designating years or the numbering of standards.

EXAMPLE 2 23 456 2 345 2.345 2.345 6 2.345 67 but the year 2011

When numbers or numerical values have a decimal separator, their multiplication should be indicated by the multiplication cross (×), instead of a half-high dot.

NOTE Do not use the letter “x” in place of a multiplication cross.

EXAMPLE 3 $2 \cdot m$
EXAMPLE 4 $1.7 \times h$

BS EN ISO 80000-2 gives an overview of multiplication symbols for numbers.

Numbers are usually given as Arabic numerals. In running text, whole numbers from one to ten should be spelled out unless:

a) they are quantities accompanied by units (including months/years); or

b) the number is part of a range that goes above ten, e.g. “8 to 20”.

For preference, fractions of a whole number should be shown as decimals. Most exceptions are for historic reasons, where nominal sizes are given by vulgar fractions, e.g. imperial pipe sizes.

9.2 Representation of numbers, symbols for variable quantities and numerical values for programming languages, pseudo-code and mark-up languages

Where the document defines, describes, refers to or contains programming language, pseudo-code or mark-up language text, the representation of the numbers, symbols for variable quantities and numerical values should follow the syntax of the appropriate programming language, pseudo-code or mark-up language.

9.3 Quantities, units, symbols and signs

9.3.1 Quantities

Quantity symbols should be written in italic type, irrespective of the type used in the rest of the text.

Quantity symbols should be chosen, wherever possible, from the various parts of the BS EN IEC 60027 series, the BS EN 60027 series, the BS EN ISO 80000 series, the BS EN 80000 series, the BS ISO 80000 series and ISO Guide 99.

Subscripts for quantity symbols are allowed and are printed in italic type when they represent a quantity or a mathematical variable. They are printed in upright type when they represent a word or a fixed number.

EXAMPLE 1			
Italic subscripts		Roman subscripts	
C_p	(p: pressure)	C_{g}	(g: gas)
c_i	(i: running number)	c_3	(3: third)

The symbol of the product of two or more quantities is indicated in one of the following ways:

ab, $a\,b$, $a \cdot b$, $a \times b$, $a * b$

abc, $a\,b\,c$, $a \cdot b \cdot c$, $a \times b \times c$, $a * b * c$

The multiplication cross (×) may also be used to indicate vector products or cartesian products.

EXAMPLE 2 $\vec{I}_G = \vec{I}_1 \times \vec{I}_2$

The half-high dot (·) may also be used to indicate a scalar product of vectors and comparable cases, and may also be used to indicate a product of scalars and in compound units.

EXAMPLE 3 $U = R \cdot I$

EXAMPLE 4 $\mathrm{rad} \cdot \mathrm{m}^2/\mathrm{kg}$

The division of one quantity by another is indicated in one of the following ways:

$\frac{a}{b}$, a/b, $a\,b^{-1}$, $a \cdot b^{-1}$

A solidus (/) should not be followed by a multiplication sign or a division sign on the same line unless parentheses are inserted to avoid any ambiguity:

$(a / b) / c = a / (bc)$, not $a / b / c$

Names of quantities or multi-letter abbreviated terms, for example, presented in italics or with subscripts, should not be used in the place of symbols.

EXAMPLE 5 Write $\rho = m / V$ and not *density* = *mass* / *volume*.

9.3.2 Units

The International System of units (SI) as set out in the BS ISO 80000 series, the BS EN 80000 series and the BS EN ISO 80000 series should be used.

NOTE The centimetre is not an SI unit. Metres or millimetres are preferred.

The units in which any values are expressed should be indicated.

It is not permitted to modify a unit symbol (e.g. by means of a subscript) to give information about the special nature of the quantity or context of measurement.

EXAMPLE 1	
Correct:	Incorrect:
$U_{\max}$ = 500 V	U = 500 $\mathrm{V}_{\max}$

Language-specific abbreviated terms such as “ppm” should not be used, if possible. If it is necessary to use language-specific abbreviated terms such as “ppm”, their meaning should be explained. To avoid using the abbreviated term “ppm”, a phrase such as “the mass

fraction is 4.2 µg/g" or "the mass fraction is 4.2 × 10^{-6}" should be used in preference to "the mass fraction is 4.2 ppm".

There are occasions where it is necessary to use a non-SI unit, e.g. when referring to equipment that is calibrated in bar or to tubing sized in inches. In these cases, the non-SI unit may be used, but the SI equivalent should be given in a footnote with the conversion factor.

In a compound unit, the individual unit symbols should be separated from each other by a raised point to indicate multiplication, e.g. "10 N·m". To indicate division, either the individual unit symbols can be separated by a solidus "/" or the latter unit symbol can be raised to the appropriate negative power with the symbols separated by a raised point.

EXAMPLE 2 m·s m/s $m \cdot s^{-1}$

Quantities larger than 1 000 and smaller than 0.000 1 may be expressed by either using a factor multiplier to the nearest thousand or by using a multiplier prefix for the unit symbol.

EXAMPLE 3 3.0×10^8 m/s 0.3 Gm·s^{-1}

When the resultant value to be calculated from an equation is expressed in terms of a unit of measurement or a percentage, this should be explained in the sentence that introduces the equation, to avoid the risk of confusing the unit symbol with the content of the equation.

EXAMPLE 4

Correct: The value of F in newtons (N) is calculated from the equation: $F = ma$
The value of d as a percentage (%) is calculated from the equation: $d = (a/b) \times 100$

Incorrect: The value of F is calculated from the equation: $F = maN$
The value of d is calculated from the equation: $d = (a/b) \times 100\%$

Mathematical signs and symbols should be in accordance with BS EN ISO 80000-2.

Annex B gives a checklist of the quantities and units that should be used.

9.4 Values, intervals and tolerances

9.4.1 General

To express values of physical quantities, Arabic numerals (called "numerical values") followed by the international symbol for the unit should be used (see the BS EN ISO 80000 series, the BS EN 80000 series, the BS ISO 80000 series, the BS EN IEC 60027 series, the BS EN 60027 series and ISO/IEC Guide 99).

EXAMPLE 1

Correct: 80 mm × 25 mm × 50 mm
(80 × 25 × 50) mm

Incorrect: 80 × 25 × 50 mm

In the expression of a quantity value, there is always a space between the numerical value and the unit symbol. The only exception to this convention is for plane angles expressed with superscript-type unit symbols. However, the degree should preferably be subdivided decimally. In some fields of science, the usage of the units minute (') and second (") is preferred, e.g. for geographic coordinates.

NOTE The percentage sign (%) does not count as a unit symbol and is not preceded by a space.

EXAMPLE 2 θ = 1 rad = 57.295 8° instead of θ = 1 rad = 57°17'45"
EXAMPLE 3 60°10'15"N 24°56'15"E (the position of Helsinki, Finland)

The quantity value is expressed with only one symbol unit, with the exception of sexagesimally divided units like the plane angle (in special fields like astronomy, cartography and navigation) and the time, although the seconds are decimally divided.

EXAMPLE 4 L = 1.234 m but Δt = 10 h 31 min 19.93 s

To designate a set of values between a and b, where $a < b$, the symbol [a, b] is used, designated by "interval". The difference $r = b - a$, denoted $r[a, b]$, is designated by "the range of the interval [a, b]".

EXAMPLE 5 The two end points 78 µF and 82 µF of the interval [78, 82] µF, also denoted [78 µF, 82 µF], can be stated as 80 µF ±2 µF or (80 ±2) µF, although this expression is often used erroneously to denote the interval preferably denoted using brackets like [80 µF ±2 µF], [(80 ±2) µF] or even [80 ±2] µF.

EXAMPLE 6 Consequently, $\lambda = 220 \times (1 \pm 0.02)$ W/(m · K) denotes the two end points $\lambda_1 = 220 \times 0.98$ W/(m · K) and $\lambda_2 = 220 \times 1.02$ W/(m · K).

EXAMPLE 7 10 kPa to 12 kPa (not 10 to 12 kPa or 10 – 12 kPa) is another way to denote the [10, 12] kPa interval.

EXAMPLE 8 0 °C to 10 °C (not 0 to 10 °C or 0 – 10 °C) is another way to denote the [0, 10] °C interval.

To indicate that one of the end points is excluded from the interval, the square bracket may be replaced by a parenthesis.

EXAMPLE 9 $x \in [a, b]$ expresses $a \leq x \leq b$, while [a, b) expresses $a \leq x < b$ and (a, b] expresses $a < x \leq b$.

Values and dimensions should be indicated as either nominal, ordinal, theoretically exact, or including a tolerance.

By the same token, their tolerances (if applicable) should be specified in an unambiguous manner.

EXAMPLE 10 80^{+2}_{0} (not 80^{+2}_{-0})

EXAMPLE 11 $80^{+0,05}_{-0,025}$ mm

In order to avoid misunderstanding, tolerances on values expressed in per cent should be expressed in a mathematically correct form.

EXAMPLE 12 Write "from 63% to 67%" to express a range.

EXAMPLE 13 Write "(65 ±2)%" to express a centre value with a tolerance.

Any value or dimension that is mentioned for information only should be clearly distinguishable from provisions.

9.4.2 Limiting values

For some purposes, it is necessary to specify limiting values (maximum, minimum). Usually one limiting value is specified for each characteristic. In the case of several widely used categories or levels, several limiting values are required.

Limiting values of strictly local importance should not be included in a document.

9.4.3 Selected values

For some purposes, values or series of values may be selected, particularly for variety control and interface purposes. They may be selected in accordance with the series of preferred numbers given in ISO 3 (see also ISO 17 and ISO 497), or according to some

modular system or other determining factors. For the electrotechnical field, recommended systems of dimensional sizes are given in IEC Guide 103.

Documents that have been established to specify selected values for equipment or components that might be referred to in the provisions of other documents should be regarded, in this respect, as basic standards.

EXAMPLE 1 For electrotechnical work, IEC 60063 specifies series of preferred values for resistors and capacitors.

EXAMPLE 2 For chemical testing, ISO/TC 48 has developed standards for laboratory equipment.

If a series of preferred numbers is used, difficulties can arise if fractions (such as 4.27) are introduced: these can sometimes be inconvenient or require unnecessarily high accuracy. In such cases they should be rounded in accordance with ISO 497.

10 Referencing

10.1 Purpose or rationale

References to particular pieces of text should be used instead of repetition of the original source material. Repetition introduces the risk of error or inconsistency and increases the length of the document. However, if it is considered necessary to repeat such material, its source should be referenced precisely.

If there is a perceived need to reproduce material in which BSI does not hold the IPR (see BS 0:2021, **9.5**, PAS 0:2022, **8.5** and BSI Flex 0 v2.0:2022-08, **8.5**), it might be necessary to seek advice from senior BSI management. This includes material in which CEN, CENELEC, ISO or IEC hold the IPR. If such material is reproduced, its source should be acknowledged both at the point where it appears in the document, and in the Foreword.

Imprecise references such as “the following clause” or “the figure above” should not be used. References can be made:

- to other parts of the document, e.g. a clause, table or figure (see **10.6**); or
- to other documents or publications (see **10.2**).

References can be:

- informative (see Clause **21**); or
- normative (see Clause **15**).

References can be:

- dated (see **10.5**); or
- undated (see **10.4**).

EXAMPLE 1

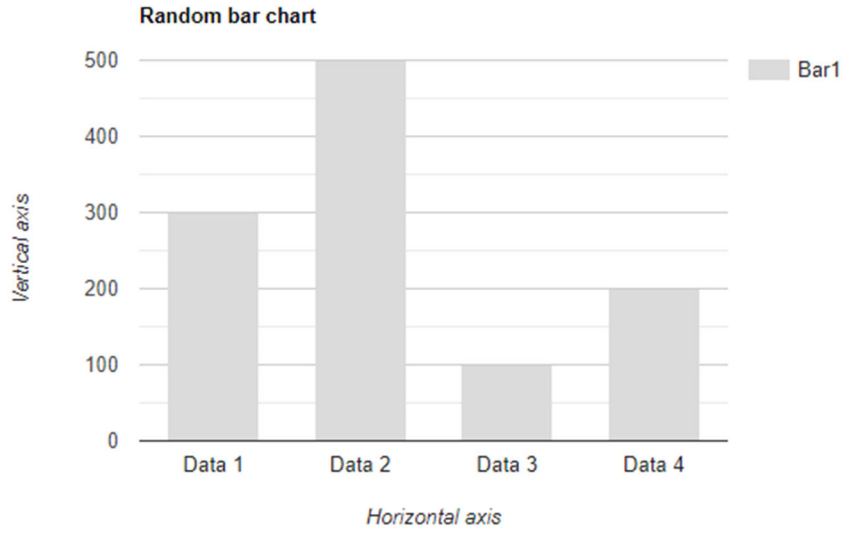
It is often useful to copy relevant terminological entries into the Terms and definitions clause, in which case the source is cited:

3.1 asset
item, thing or entity that has potential or actual value to an organization
[SOURCE: ISO 55500:2014, **3.2.1**]

EXAMPLE 2

Material copied from an external document:

Figure A.6 – Example of material from an external document



NOTE This is a reproduction of Figure 6 in External referenced document *[1]. It is reproduced with the kind permission of Publisher, Address, Postcode.*

For management system standards, the rules of the ISO/IEC Directives, Part 1, Consolidated ISO Supplement apply.

10.2 Permitted referenced documents

Normatively referenced documents should be documents published by BSI, CEN, CENELEC, ISO and/or IEC where these exist. In the absence of appropriate BSI, CEN, CENELEC, ISO and/or IEC documents, those published by other bodies may be listed as normative references provided that:

a) the referenced document is recognized by the committee as having wide acceptance and authoritative status and not of an unstable or ephemeral nature;

b) the document is publicly available (in this context, “publicly available” means published documents which are available free of charge, or available commercially under reasonable and non-discriminatory terms to any user; it does not include private documents that are only available within the publishing organization);

c) any patented item required for the implementation of the document is available to be licensed in accordance with the ISO/IEC Directives, Part 1, 2021, **2.14**; and

d) the referenced document is self-contained for the purposes of the reference, i.e. does not depend upon further reference to a non-standards publication.

NOTE 1 It is the responsibility of the committee or panel to verify that these criteria have been met.

Informative reference may be made to any other type of document that is publicly available [as defined in item b) above]. Informative references should be listed in the Bibliography.

The committee or panel should validate all referenced documents when a document is revised.

The normative references list should not include the following:

- referenced documents which are not publicly available [as defined in item b) above];
- referenced documents which are cited only informatively as bibliographic or background material;
- documents that have not been published, e.g. Drafts for Public Comment, prENs (draft European standards) or draft international standards;

  NOTE 2 Draft standards are not referred to normatively because they might change before publication. It is permissible to give an informative reference to a draft standard, using wording such as "Requirements for the widget are given in prEN 1234" and placing the reference in a note.

  NOTE 3 BSI Flex standards are considered as publications, so they have an ISBN and can be referred to normatively.
- legislative documents (regulations, EC Directives, Acts of Parliament, Approved Documents, etc.); and
- withdrawn standards.

Withdrawn standards are not referred to normatively. Withdrawn standards may be referred to informatively if, for example, it is necessary to explain the origin of a particular provision of the document. In this case, the entry in the Bibliography should read "BS 1234 (withdrawn)", and the text that cites the standard should make clear that it has been withdrawn.

NOTE 4 Withdrawn publications no longer carry the status of a British Standard, PAS, BSI Flex or Published Document, as appropriate.

It is inadvisable to refer to obsolescent standards even if they are still current (obsolescent standards were phased out with the publication of BS 0:2011).

Where a British Standard exists (including a BS implementation of an international standard), it should be referred to in preference to a pure ISO/IEC standard.

10.3 Presentation of references

Documents should be referred to by their number and, if applicable, date of publication and title.

EXAMPLE 1

PD ISO/TR 12353-3:2013, *Road vehicles – Traffic accident analysis – Part 3: Guidelines for the interpretation of recorded crash pulse data to determine impact severity*

BS EN ISO 14044:2006, *Environmental management – Life cycle assessment – Requirements and guidelines*

BS ISO 17101-2:2012, *Agricultural machinery – Thrown-object test and acceptance criteria – Part 2: Flail mowers*

BS ISO 14617 (all parts), *Graphical symbols for diagrams*

BS EN ISO/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories*

IEC 61175-1, *Industrial systems, installations and equipment and industrial products – Designation of signals – Part 1: Basic rules*

For other referenced documents and information resources (printed, electronic or otherwise), the relevant rules set out in BS ISO 690 should be followed. References to non-standards publications should be formatted in accordance with the usual order of elements given in BS ISO 690 (i.e. not the Harvard system).

ISBNs, and other reference numbers such as SI numbers, are not mandatory, but should be applied consistently within a single document if used.

Non-standards publications may include a footnote giving details of where and how the publication can be obtained, prefaced with the words “Available at” (for a website) or “Available from” (for a postal address).

EXAMPLE 2

Printed book or monograph:

STONE, K., MURRAY, A., COOKE, S., FORAN, J., and GOODERHAM, L. *Unexploded ordnance (UXO): A guide for the construction industry*. C681. London: CIRIA, July 2009.

Legislation:

GREAT BRITAIN. Equality Act 2010. London: The Stationery Office.

Online-only book or monograph:

INTERNET ENGINEERING TASK FORCE (IETF). RFC 3979: *Intellectual Property Rights in IETF Technology* [online]. Edited by S. Bradner. March 2005[2)]

———

[2)] Available at www.ietf.org/rfc/rfc3979.txt.

Contribution to printed serial publication:

AMAJOR, L.C. The Cenomanian hiatus in the Southern Benue Trough, Nigeria. In: *Geological Magazine*. 1985, **122**(1), 39-50. ISSN 0016-7568.

Contribution to online serial publication:

STRINGER, John A., et al. Reduction of RF-induced sample heating with a scroll coil resonator structure for solid-state NMR probes. In: *Journal of Magnetic Resonance* [online]. Elsevier. March 2005, **173**(1), 40-48.[3)]

———

[3)] Available at doi:10.1016/j.jmr.2004.11.015.

For online referenced documents, information sufficient to identify and locate the source should be provided. Preferably, the primary source of the referenced document should be cited in order to enable traceability.

The information should include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters as given in the source (see BS ISO 690).

Furthermore, the referenced document should be expected to remain valid for the expected life of the referring document.

There is a distinction between a publication or resource that is only available online and a generic website; there is also a distinction between the publication itself and the place where it can be obtained. Online-only publications should be included in the Bibliography with a reference number and the usual bibliographic details. General website references do not need to be listed in the Bibliography.

When writing a URL, it can be helpful to avoid using underlining, which makes underscores (“_”) difficult to distinguish.

A non-standards publication should be cited in the text by its identifier, if there is one, or by its title.

It can be useful to identify the publisher within the citation, particularly if there is only a corporate author and no identifier.

EXAMPLE 3

Concrete Society publication TR 34

Cold Storage and Distribution Federation publication *Guide to the management and control of the fire risks in temperature controlled structures of the refrigerated food industry*

For normative references, the citation should be followed by the letter N and an Arabic numeral in square brackets, e.g. “[N9]”, allocated in the order in which the documents are first cited. This is then the order in which the documents are listed in the “Other publications” section of the Normative references clause (see **15.4**).

For informative references, the citation should be followed by an Arabic numeral in square brackets, e.g. “[12]”, allocated in the order in which the documents are first cited. This is then the order in which the documents are listed in the “Other publications” section of the Bibliography (see **21.4**). The numbering of informative references should be independent of the numbering for normative references. If a non-standards publication is cited both normatively and informatively, the normative reference identifier, e.g. “[N9]”, should be used for all instances of the reference.

Ranges should be shown in the form “([12], [13])” or “([N1] to [N5])”.

In the case of old dual-numbered standards, where an EN or an ISO was given a different BS number, as a general rule only the primary identifier should be given (i.e. BS EN or BS ISO). If the secondary identifier is required, it should follow the primary identifier in parentheses, e.g. “BS EN 6789 (BS 1234-1)”, “BS EN 4875 (BS 1234-2)”.

If a reference is made to a draft standard (e.g. a DPC or prEN), both the reference in the text and the reference in the Bibliography should include a footnote indicating that the referenced document is in preparation. Such references should always be informative (see **10.2**).

10.4 Undated references

Undated references may be made:

- only to a complete document;
- if it will be possible to use all future changes of the referenced document for the purposes of the referring document; and
- when it is understood that the reference will include all amendments to and revisions of the referenced document.

The date of publication (see **10.5**) should not be given for undated references. When an undated reference is to all parts of a series:

a) the standard identifier should be followed by “(all parts)” in the lists of documents in the Normative references clause and in the Bibliography; and

b) the form “the BS ISO xxxx series” or “the BS EN xxxx series” should be used in the text.

In the Normative references clause or the Bibliography, use the following forms to list undated references.

EXAMPLE 1

IEC 60335 (all parts), *Household and similar electrical appliances* – *Safety*	Reference to all parts
IEC 60335-1, *Household and similar electrical appliances* – *Safety* – *Part 1: General requirements*	Reference to a single part

In the text, use the following forms to make undated references to a document or series.

EXAMPLE 2
"… use the methods specified in ISO 128-2 and ISO 80000-1 …"
"… IEC 60417 shall be used…"
"… use the test methods of the IEC 60335 series …"

In the case of an undated reference to a document that has recently been issued with a new identifier, it can be helpful to give the previous identifier in a footnote.

10.5 Dated references

Dated references are references to a specific edition, indicated by the date of publication.

For dated references, each should be given with its year of publication.

The date of publication should be indicated by the year or, for documents for which more than one edition of the document or an element within the document will be published in the same calendar year, the year of publication and the month (and where necessary the day).

If the referenced document is amended or revised, the dated references to it should be reviewed to assess whether they should be updated or not. Where a dated reference is given, any subsequent amendments to or revisions of the cited document will not apply unless the reference is changed.

In this context, a part is regarded as a separate document.

Within the text, references to specific elements (e.g. clauses or subclauses, tables and figures) of a referenced document should always be dated, because these elements are sometimes renumbered in subsequent editions of the referenced document. Other examples of elements of text that require dated references are classifications, categories, types and quotations.

If any single normative reference to a particular document is dated, then every reference to that standard should be dated throughout the document, and only the dated version should be listed as a normative reference.

In the Normative references clause or the Bibliography, use the following forms to list dated standards references.

*NOTE Standards references are dated in the Bibliography only if they are dated in the text. All non-standards references in the Normative references clause or the Bibliography are dated, as specified in BS ISO 690 (see **10.3**).*

EXAMPLE 1

BS 6380:2012, *Guide to low temperature properties and cold weather use of diesel fuels and gas oils*	Dated reference to a standard
BS 6380:2012+A1:2016, *Guide to low temperature properties and cold weather use of diesel fuels and gas oils*	Dated reference to an amendment

In the text, use the standard identifier rather than the title when referring to a BS, EN, ISO or IEC document. The titles are usually only written out in full in the Normative references clause and in the Bibliography.

In the text, use the following forms to make dated references to a document.

EXAMPLE 2

… perform the tests given in BS 8489-4:2016 …	Dated reference to a published document
… as specified in BS 1924-1:2018, Table 2, …	Dated reference to a specific table in another published document
… use symbol IEC 60417-5017:2002-10 …	Dated reference to an entry within a database standard
… in accordance with BS 6380:2012+A1 …	Dated reference to an amendment

EXAMPLE 3

Dated versus undated references:

The test methods of BS EN IEC 61300-2-2 shall be used.	This is a reference to a complete document and it is therefore undated
The dimensions shall be in accordance with IEC 60793-2-50:2018, Table B.1.	This is a reference to a specific element in the referenced document and it is therefore dated

10.6 References in a document to itself

For an individual document, the form "this British Standard" (or equivalent) should be used.

*NOTE The boilerplate text in the Foreword (see **12.5**), Normative references clause (see **15.5.1**) and Terms and definitions clause (see **16.5.2**) uses the form "this document".*

In contexts where it is necessary to specify the number of the document, it is acceptable to do so.

EXAMPLE 1

This part of BS 6349 gives informative references to BS 6349-1-1:2013.

Various anchor types are covered in BS 6349-6, which is undergoing revision at the time of publication of BS 6349-5.

References to particular elements of the text (e.g. clauses, subclauses, tables, figures, mathematical formulae, annexes) are made by using their number.

EXAMPLE 2

Annex B outlines test methodologies used for salt mist conditions.

References should not be made to page numbers, since pagination can change if the referenced document is published in different formats, or if the document is revised.

If content has been subdivided into a series of parts, reference in the text to the entire series including the individual document should be made using the form "the ISO xxxx series" or "the IEC xxxx series".

EXAMPLE 3

The formulae in the ISO 10300 series are intended to establish uniformly acceptable methods for calculating the pitting resistance and bending strength of…

Such undated references are understood to include all amendments and revisions to the referenced document.

10.7 References to legislation

Principles for referencing legislation are given in BS 0:2021, **9.2**, PAS 0:2022, **8.2** and BSI Flex 0 v2.0:2022-08, **8.2**.

If references are given to specific acts or regulations, all national variations should be included. It is not necessary to spell out all the variations each time they appear in the text; a reference range can be used instead, e.g. “[1] to [3]”, with the full details given in the Bibliography.

Legislative documents cannot be cited as normative references (see **10.2**). Any references to legislation should be informative, introduced by the words “Attention is drawn to…”.

EXAMPLE

NOTE Attention is drawn to the Building Regulations 2010 [1], the Building (Scotland) Regulations 2004 [4] and the Building Regulations (Northern Ireland) 2012 [5], in respect of the penetration of compartment walls and compartment floors by services in shafts.

All legislative documents referenced in the text should be included in the Bibliography (see **21.5**), with each national variation listed as a separate entry.

Section 3: Subdivision of the document

11 Title

11.1 Purpose or rationale

The title is a clear, concise description of the subject matter covered by the document. It is drafted so as to distinguish the subject matter from that of other documents, without going into unnecessary detail. Any necessary additional details are given in the Scope.

11.2 Normative or informative?

The title is a normative element.

11.3 Mandatory, conditional or optional?

The title is a mandatory element.

11.4 Numbering and subdivision

The title is composed of separate elements, each as short as possible, proceeding from the general to the particular and separated by en dashes. For example:

a) an *introductory element* indicating the general field to which the document belongs (this can often be based on the title of the committee which prepared the document);

b) a *main element* indicating the principal subject treated within that general field;

c) a *complementary element* indicating the particular aspect of the principal subject or giving details that distinguish the document from other documents (e.g. a part number); and

d) a *document type* (see **3.1**).

No more than three elements should be used. The main element and document type should always be included.

The introductory element should be included if the field of application is not obvious from the main element.

EXAMPLE 1	
Correct:	*Raw optical glass – Grindability with diamond pellets – Test method and classification*
Incorrect:	*Grindability with diamond pellets – Test method and classification*

For a stand-alone document, the document type should be the final element in the title.

*NOTE The document type is usually one of the terms defined in Clause **3**. A different form of wording may be used if it would aid the reader.*

EXAMPLE 2 (main element and document type)	
BS 1245	*Pedestrian doorsets and door frames made from steel sheet – Specification*
BS 7993	*Twin ferrule connectors and associated tubing for 316 stainless steel systems – Specification and test methods*
BS 8214	*Timber-based fire door assemblies – Code of practice*
BS 9997	*Fire risk management systems – Requirements with guidance for use*

EXAMPLE 3 (main element, complementary element and document type)	
BS 8617	*Personal protective equipment for firefighters – Cleaning, maintenance and repair – Code of practice*
PAS 1879	*Energy smart appliances – Demand side response operation – Code of practice*

The title of a part should be composed in the same way. All the individual titles in a series of parts should contain the same introductory element (if present) and main element, while the complementary element should be different in each case in order to distinguish the parts from one another. The complementary element should be preceded in each case by the designation “Part …:”.

EXAMPLE 4 (main element, complementary element with part number, and document type)

BS 8300-1	*Design of an accessible and inclusive built environment – Part 1: External environment – Code of practice*
BS 8300-2	*Design of an accessible and inclusive built environment – Part 2: Buildings – Code of practice*

If there would otherwise be four elements in the title, the document type should be combined with the final element.

EXAMPLE 5 (combining the document type with the final element)

Correct:	*Fixed fire protection systems – Industrial and commercial watermist systems – Part 4: Fire performance tests and requirements for watermist systems for local applications involving flammable liquid fires*
Incorrect:	*Fixed fire protection systems – Industrial and commercial watermist systems – Part 4: Watermist systems for local applications involving flammable liquid fires – Fire performance tests and requirements*

When a document is divided into subparts, the parts within each subseries should have the same subseries title.

EXAMPLE 6 (document divided into subparts)

In this example, the form “Code of practice for” is used in all parts for consistency.

BS 6349-1-1	*Maritime works – Part 1-1: General – Code of practice for planning and design for operations*
BS 6349-1-2	*Maritime works – Part 1-2: General – Code of practice for assessment of actions*
BS 6349-1-3	*Maritime works – Part 1-3: General – Code of practice for geotechnical design*
BS 6349-2	*Maritime works – Part 2: Code of practice for the design of quay walls, jetties and dolphins*
BS 6349-3	*Maritime works – Part 3: Code of practice for the design of shipyards and sea locks*

11.5 Specific principles and rules

11.5.1 Avoidance of unintentional limitation of the scope

The title should not contain details that can unintentionally limit the scope of the document.

11.5.2 Wording

The terminology used in the titles of documents should be consistent.

For documents dealing exclusively with terminology, use the expression “Vocabulary”.

For documents dealing with test methods, use the form

> “Test method” or “Determination of …”

instead of expressions such as

> “Method of testing”, “Method for the determination of …”, “Test code for the measurement of …” and “Test on …”.

The nature of the document as a standard should not be indicated in the title.

EXAMPLE	
Correct:	*Fire safety in the design, use and management of buildings – Code of practice*
Incorrect:	*British Standard for fire safety in the design, use and management of buildings*

12 Foreword

12.1 Purpose or rationale

The Foreword provides information on:

- the organization responsible for publishing the document;
- the committee that developed the document;
- the procedures and rules under which the document was developed;
- legal disclaimers; and
- relationships between the present document and other documents.

National Annexes to Eurocodes do not contain a Foreword (see **G.7.1**).

12.2 Normative or informative?

The Foreword is an informative element. It should not contain requirements, permissions or recommendations.

12.3 Mandatory, conditional or optional?

The Foreword is a mandatory element.

12.4 Numbering and subdivision

The Foreword should not have a clause number. It should be subdivided as described in **12.5**.

12.5 Specific principles and rules

The Foreword should appear immediately after the contents list.

The Foreword should provide as many of the following as are appropriate, using subheadings as shown to help the reader to locate information.

- *Publishing information*.

  This should be included in every Foreword, and should give:

  - a publication and licensing statement;
  - the designation and name of the committee that developed the document for a British Standard of UK origin or Published Document (panels are not referred to in the Foreword);
  - the effective date, where appropriate;
  - a statement that the initial drafting was produced in association with the Department for Business, Energy and Industrial Strategy (BEIS), where appropriate;
  - sponsor, technical author and steering group information for a PAS;
  - sponsor, technical author and advisory group information for a BSI Flex;
  - acknowledgement of an exceptional personal contribution, where appropriate; and
  - an indication of any other organization that has contributed to the development of the document.

- *Supersession*.

  This should be included in the Foreword of every revision, new edition and amendment, and should give a statement that the document supersedes other documents in whole or in part, with details of those other documents.

- *Relationship with other publications*.

  This should be included only when needed, and should give: !

  - the relationship of the document to other documents; if the document is published in parts, this is the appropriate place to list the other parts; and !
  - reference to relevant European and/or international work. !

- *Information about this document*.

  This should be included in every Foreword. It should give a statement of significant changes from any previous edition of the document and as many of the following as are appropriate:

  - a description of the way in which amendments and corrigenda are indicated in the text, with specific details where appropriate;
  - information relating to the structure of the document (e.g. in a code of practice, an explanation as to which sections or clauses are aimed at which audience);
  - any problems in preparation (e.g. matters omitted because agreement could not be reached);
  - acknowledgement of copyrighted material; !
  - note of commendation from a government department or agency (e.g. Health and Safety Executive);
  - information regarding independent conformity attestation or assessment, or use of an accredited laboratory;
  - background information about the document, if an Introduction is not included; !
  - options for updating standards (always included); and !
  - a website disclaimer (always included). !

- *Hazard warnings*.

  This should be included only when needed, and should give any necessary hazard warnings (see **24.8**).

- *Use of this document*.

  This should be included in the Foreword of all codes of practice, and in other documents where appropriate. It should give:

  - if the document is intended to be used by a number of different parties, details of which sections/clauses are intended to be read by each party;
  - in a code of practice, reference to the need to avoid confusion with a specification and a statement to the effect that users may substitute any of the recommendations with practices of equivalent or better outcome;
  - a statement to the effect that the document is designed for use by appropriately qualified and competent people, where appropriate; and
  - permission to reproduce a figure or table, where appropriate.

- *Presentational conventions*.

  This should be included in every Foreword, and should give the linguistic and typographic conventions used in the document.

- *Contractual and legal considerations*.

  This should be included in every Foreword, and should give the prescribed wording relating to contractual and legal issues.

  *NOTE If references to specific items of legislation are essential (see **10.7**), it is permissible to list them after the standard wording.*

The word “Foreword” should not be used for any other headings in the document.

13 Introduction

13.1 Purpose or rationale

The Introduction provides specific information or commentary about the technical content of the document, and about the reasons prompting its preparation.

13.2 Normative or informative?

The Introduction is an informative element. It should not contain requirements, permissions or recommendations.

13.3 Mandatory, conditional or optional?

The Introduction is an optional element. It is only mandatory if a specific patent right has been identified during the development of the document.

13.4 Numbering and subdivision

The Introduction should not have a clause number unless there is a need to create numbered subdivisions. In this case, it should be numbered 0, with subclauses being numbered 0.1, 0.2, etc. Any figure, table, displayed formula or footnote should be numbered starting with 1.

13.5 Specific principles and rules

If an Introduction is included, it should usually appear immediately after the Foreword. If, in exceptional cases, a ministerial statement is required, it should appear between the Foreword and the Introduction.

Whenever alternative solutions are offered in a document and preferences for the different alternatives provided, the reasons for the preferences should be explained in the Introduction.

Where patent rights have been identified in a document, the Introduction should include an appropriate notice (see Clause **30**).

The word “Introduction” should not be used for any other headings in the document.

14 Scope

14.1 Purpose or rationale

The Scope clearly defines the subject of the document and the aspects covered, thereby indicating the limits of applicability of the document or particular parts of it.

For the purposes of clarity, the Scope can indicate other subjects that are excluded from the document, when other subjects can be implied by the wording of the Scope or title.

EXAMPLE This British Standard excludes ….

In documents that are subdivided into parts, the Scope of each part should define the subject of that part of the document only.

The Scope should be succinct so that it can be used as a summary for bibliographic purposes, for example, as an abstract. If further details and background information are necessary, these should be included in either the Introduction or an annex.

14.2 Normative or informative?

The Scope is a normative element because it delimits the subject of the document.

14.3 Mandatory, conditional or optional?

The Scope is a mandatory element.

14.4 Numbering and subdivision

The Scope should be numbered as Clause 1. It may be subdivided; however, this is not normally necessary as it is meant to be succinct.

14.5 Specific principles and rules

The Scope should not contain requirements, permissions or recommendations.

It should only appear once in each document and should be worded as a series of statements of fact.

Forms of expression such as the following should be used:

EXAMPLES

This British Standard

specifies	requirements for…	Specification
describes	a method of…	Test method
gives	recommendations for…	Code of practice
gives	guidance on…	Guide
defines	terms for…	Vocabulary
establishes	the nomenclature for…	Classification

Statements of applicability of the document should be introduced by wording such as:

- "This document is applicable to …"
- "This document does not apply to…"

The Scope may include a statement of the audience for whom the document is intended (see **5.10**).

NOTE This is particularly useful in a document that is intended for use by a number of different parties.

The word "Scope" should not be used for any other headings in the document.

15 Normative references

15.1 Purpose or rationale

The Normative references clause lists, for information, those documents which are cited in the text in such a way that some or all of their content constitutes provisions of the document.

Information on how these references apply is found in the place where they are cited in the document, and not in the Normative references clause.

15.2 Normative or informative?

The Normative references clause is an informative element.

15.3 Mandatory, conditional or optional?

The Normative references clause is a mandatory element, even if it contains no normative references.

15.4 Numbering and subdivision

The Normative references clause should be numbered as Clause 2.

Referenced standards listed are not numbered but should be presented in alphanumerical order.

If non-standards publications are listed, they are numbered in the order in which they are first cited in the text. Each reference should be preceded by the letter N and an Arabic numeral in square brackets, e.g. “[N9]”, corresponding to the reference given in the text (see **10.3**).

If there are both standards and non-standards publications listed as normative references, the Normative reference clause should be subdivided. The standards publications should be given first, under an unnumbered heading of “Standards publications”. References to non-standards publications should then be given, in the order in which they are numbered, under an unnumbered heading of “Other publications”.

NOTE “Standards publications” are typically standards published by National Standards Bodies (NSBs), CEN/CENELEC or ISO/IEC.

15.5 Specific principles and rules

15.5.1 General

The Normative references clause should appear only once in each document.

15.5.2 Introductory wording and footnotes

The list of normative references should be introduced by the following wording:

> The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

The above wording is also applicable to a part of a multipart series.

If the list of normative references is divided into standards and non-standards publications, the above wording should precede the “Standards publications” heading.

If no normative references exist, include the following sentence below the clause title:

> There are no normative references in this document.

If the document contains informative references, the following wording should be included as a footnote, with the footnote reference located either after the first sentence of the introductory paragraph or at the end of the introductory phrase, as appropriate:

> Documents that are referred to solely in an informative manner are listed in the Bibliography.

If there is an undated normative reference and a dated informative reference to the same standard, the entry in the list of normative references should be undated, with a footnote referring to the dated version.

EXAMPLE 1

BS 8486-1, *Examination and test of new lifts before putting into service – Specification for means of determining compliance with BS EN 81 – Part 1: Electric lifts* [5)]

———

[5)] This British Standard also gives an informative reference to BS 8486-1:2007.

If there is an undated normative reference to all parts of a series and dated references to individual parts of the series, the entry in the list of normative references should be to the series, with a footnote referring to the individual dated parts.

EXAMPLE 2

BS 8486 (all parts), *Examination and test of new lifts before putting into service – Specification for means of determining compliance with BS EN 81* [6)]

———

[6)] This British Standard also gives a normative reference to BS 8486-1:2007 and an informative reference to BS 8486-9:2018.

15.5.3 Referencing

Only references cited in the text in such a way that some or all of their content constitutes provisions of the document, or references falling into one of the categories below, should be listed in the Normative references clause.

References that do not express provisions are considered to be normative in the following instances for any document type:

a) references that are cited in the Scope clause, where the application of the document is limited in range by the content of another document, or where the document is intended to be read in conjunction with another document; or

b) references that are cited in the Terms and definitions introductory wording (see **16.5.3**).

EXAMPLE 1 (specification)

In the following case, the citation is normative, and the document should be listed in the Normative references clause:

> *Connectors shall conform to the electrical characteristics specified by BS EN 60603-7-1.*

In the following case, the citation does not express a provision, so the document cited is not a normative reference. Instead, the document cited should be listed in the Bibliography:

> *Wiring of these connectors should take into account the wire and cable diameter of the cables defined in the BS IEC 61156 series.*

EXAMPLE 2 (test method)

In the following case, the citation is normative, and the document should be listed in the Normative references clause:

> *Use the method described in BS 1924.*

EXAMPLE 3 (code of practice)

In the following case, the citation is normative, and the document should be listed in the Normative references clause:

Sprinkler systems should be designed and installed in accordance with BS EN 12845.

In the following case, the citation does not express a provision, so the document cited is not a normative reference. Instead, the document cited should be listed in the Bibliography:

Guidelines for auditing management systems are given in BS EN ISO 19011.

EXAMPLE 4 (Scope clause in any standard)

In the following case, the citation is normative, and the document should be listed in the Normative references clause:

This part of BS 8486 specifies one means of determining compliance with the provisions for examination, testing and recording results for new electric and hydraulic lifts specified in BS EN 81-20:2014, before being put into service.

EXAMPLE 5 (Terms and definitions clause in any standard)

In the following case, the citation is normative, and the document should be listed in the Normative references clause:

For the purposes of this document, the terms and definitions given in BS 6349-1-1 apply.

Table 3 provides the verbal forms and expressions that make a citation normative.

When citing other documents, avoid using potentially ambiguous expressions, where it is unclear whether a requirement or a recommendation is being expressed. For example, the expressions “see…” and “refer to…” should only be used informatively, and should not be used as stand-alone sentences (except in footnotes). Expressions such as “…should be referred to” or “reference shall be made to…” should not be used.

EXAMPLE 6

In the following cases, the references are informative.

Preferred: *Additional information on communication is given in BS EN ISO 14063.*

Accepted: *For additional information on communication, see BS EN ISO 14063.*

The types of document which may be referenced are given in **10.2**.

References listed may be dated or undated (see **10.4** and **10.5**).

16 Terms and definitions

16.1 Purpose or rationale

The Terms and definitions clause provides definitions necessary for the understanding of certain terms used in the document.

If necessary, terminological entries can be supplemented by information given in notes.

EXAMPLE

3.6 door

building component for closing an opening in a wall that allows access and might or might not admit light when closed

NOTE The word “door” is used as a generic term for door leaves and door assemblies.

Terminology may take the form of an independent terminology standard (a vocabulary or nomenclature) or be included in a Terms and definitions clause in a document that also deals with other aspects. Terminology may also be included in databases.

16.2 Normative or informative?

The Terms and definitions clause is a normative element. It defines the way in which the listed terms are to be interpreted by users of the document.

16.3 Mandatory, conditional or optional?

The Terms and definitions clause is a mandatory element, even if it contains no terminological entries.

16.4 Numbering and subdivision

The Terms and definitions clause should be numbered as Clause 3. It may be subdivided. Terminological entries should be numbered.

NOTE These numbers are not considered as subclause numbers.

EXAMPLE 1

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 fire resistance

ability of an item to fulfil for a stated period of time the required fire stability and/or integrity and/or thermal insulation, and/or other expected duty specified in a standard fire resistance test

Subdivision of the terms and definitions clause is permitted.

EXAMPLE 2

3 Terms and definitions

[…]

3.26 Fire doors

3.26.1 fire door

door that, as installed in a building, is intended when closed to resist the passage of fire and is capable of meeting specified performance criteria

3.26.1 self-closing fire door

fire door fitted with a device which fully closes the door, overriding the resistance of any latch

[…]

3.44 Lifts

[…]

3.44.2 evacuation lift

lift designed to be used for the evacuation of disabled people which has appropriate structural, electrical and fire protection

If symbols and/or abbreviated terms are provided, they should be combined with the terms and definitions in order to bring together terms and their definitions, symbols and abbreviated terms under an appropriate composite title, for example “Terms, definitions, symbols and abbreviated terms”. Where these elements are included, the composite title should be numbered as Clause 3, and the Terms and definitions subclause should be numbered as 3.1.

Terms may be listed in any logical order. It is often advisable to list them in alphabetical order, for ease of use, but it is sometimes clearer to arrange them by subject, and/or to group them under subheadings.

The grouping of terms should be evident from their numbering. Within a document, the entry number should be unique and should be in accordance with the rules for numbering of subdivisions (see **6.4**). In terminology standards, an alphabetical index of the terms should be included if the terms do not appear in alphabetical order.

16.5 Specific principles and rules

16.5.1 General

The Terms and definitions clause should appear only once in each document.

16.5.2 Rules for the development of terminological entries

Terminological entries should be drafted in accordance with BS ISO 10241-1. Subclause **16.5** contains only a summary of some of these rules. General principles and methods for terminology work are specified in BS ISO 704.

Before a term and a definition are established for a concept, it is advisable to check whether other terms and definitions for that concept exist in another document.

16.5.3 Introductory wording

If all the specific terms and definitions are provided in Clause 3, use the following introductory text:

> For the purposes of this document, the following terms and definitions apply.

If reference is given to an external document, use the following introductory text:

> For the purposes of this document, the terms and definitions given in [external document reference xxx] apply.

If terms and definitions are provided in Clause 3, in addition to a reference to an external document, use the following introductory text:

> For the purposes of this document, the terms and definitions given in [external document reference xxx] and the following apply.

If there are no terms and definitions provided, use the following introductory text:

> No terms and definitions are listed in this document.

*NOTE 1 The introductory text is not a hanging paragraph (see **22.3.3**), as the Terms and definitions clause consists of a list of terminological entries and not subclauses.*

NOTE 2 ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- *ISO Online browsing platform: available at https://www.iso.org/obp; and*
- *IEC Electropedia: available at https://www.electropedia.org.*

These databases are referred to in the ISO/IEC standard wording. They are not mandatory in UK standards drafting, but they might be useful.

16.5.4 Permitted content

Only terms which are used in the document should be listed in the terms and definitions clause. This rule does not apply to terminology standards, whose terms are intended for wider use. Within a terminological entry, cross-references may also be made to other terminological entries.

If an external document is cited in the introductory wording (see **16.5.3**), the terms within that document should not be repeated.

16.5.5 Terms

Common terms, which a qualified user of the document will already know, should not be defined.

As a general rule, terms that are used in their standard dictionary meaning should not be defined. Where it is considered necessary to do so, established definitions (e.g. from the

Shorter Oxford English Dictionary [4] or from a published British, European or international vocabulary or other standard) should be used.

Definitions that are given in legislation should not be repeated in the Terms and definitions clause.

Terms can be one of the following types.

- **Preferred terms** are the primary terms for a given concept. The preferred term is the form which is used throughout the main body of the text.
- **Admitted terms** are accepted synonyms for the preferred term, included for the information of users of the document but not used in the main body of the text.
- **Deprecated terms** are synonyms of the preferred term which are no longer in use or whose use is discouraged, included for the information of users of the document but not used in the main body of the text.

In most UK standards, only the preferred term should be used (and does not need to be labelled as such), and any admitted or deprecated terms should be referred to in a note to the entry (see **16.5.9**). The differentiation between types of term is applicable in terminology standards.

Terms should be written in lower case letters. Upper case letters, mathematical symbols, typographical signs and syntactic signs (e.g. punctuation marks, hyphens, parentheses, square brackets and other connectors or delimiters) as well as their character styles (i.e. fonts and bold, italic, bold italic, or other style conventions) should be used in a term only if they constitute part of the normal written form of the term. Terms should in general be presented in their basic grammatical form (nouns in the singular, verbs in the infinitive).

EXAMPLE 1

Correct use of parentheses:

bis(dimethylthiocarbamyl) disulfide	The parentheses and the content therein are part of the term.

Incorrect use of parentheses:

integrity (of system)	The words in parentheses are not part of the term.

EXAMPLE 2

Correct expression of equivalent terms:

deck approach *NOTE This is also known as deck access.*	The preferred term is given as the defined term and the synonym is given in a note.

Incorrect expressions of equivalent terms:

deck approach (deck access)	The synonymous term is given in parentheses.
deck approach **deck access**	The preferred term and any synonyms are written on separate lines.

EXAMPLE 3

Correct use of capitalization:

Reynolds number	"Reynolds" is a proper noun. It is capitalized.

Incorrect use of capitalization:

Planned outage	"Planned" is not a proper noun. It should not be capitalized.

When a term has been defined, its written form throughout the text should be identical to that in the terminological entry, and it should be used consistently with the meaning given in the entry.

16.5.6 Definitions

The definition should be written in such a form that it can replace the term in its context. It should not start with an article ("the", "a") nor end with a full stop. A definition should not take the form of, or contain, a requirement, recommendation or permission.

The definition should be placed on a new line, starting with a lower case letter, except for any capital letters required by the normal written form in running text.

Only one definition per terminological entry is allowed. If a term is used to define more than one concept, a separate terminological entry should be created for each concept and the domain should be included in angle brackets before the definition.

EXAMPLE 1

2.1.17 die
<extrusion> metal block with a shaped orifice through which plastic material is extruded

2.1.18 die
<moulding> assembly of parts enclosing the cavity from which the moulding takes its form

Circular definitions, which repeat the term being defined, are not allowed.

Where it is considered useful, grammatical information may be indicated as follows:

- for number: sg (for singular) and pl (for plural); and
- for part of speech: noun, verb, adj (for adjective) and adv (for adverb).

Additional information should be given only in examples (see **16.5.7**) or notes (see **16.5.9**).

A definition should not take the form of, contain, or refer to a provision of the document. An item is what it is, whether or not it conforms to a standard.

EXAMPLE 2

Correct:	**3.7 gasket** strip of flexible material used to form a seal around a window
Incorrect:	**3.7 gasket** strip of flexible material conforming to this standard used to form a seal around a window

If a definition of a term proposed for a document varies substantially from an accepted trade usage of that term, advice should be sought from the Institute of Trading Standards Administration in case the proposal might give rise to any infringement of the Trade Descriptions Act 1968 [6].

16.5.7 Examples within terminological entries

Examples provide information that illustrates the concept. Examples should not contain requirements (use of "shall") or any information considered indispensable for the use of the document, for example instructions (imperative mood), recommendations (use of "should") or permission (use of "may"). Examples should be written as a statement of fact.

Examples should be placed on a new line, after the definition.

Examples to terminological entries are designated "EXAMPLE" and should be numbered starting with "1" within each terminological entry. A single example in a terminological entry should not be numbered.

16.5.8 Non-verbal representations

Figures and formulae may be included within a terminological entry. The definition may take the form of a formula, as set out in BS ISO 10241-1.

16.5.9 Notes to terminological entries

Notes to terminological entries follow the same rules as notes integrated in the text (see Clause **24**), including their numbering.

They provide additional information that supplements the terminological data, for example:

- statements relating to the use of a term; or
- information regarding the units applicable to a quantity; or
- an explanation of the reasons for selecting an abbreviated form as preferred term; or
- alternative terms (admitted or deprecated).

Notes to terminological entries should be placed on a new line, after any examples.

Terminological entries do not have commentaries.

A summary of how to use notes, footnotes and commentaries within documents is given in **24.1**.

EXAMPLE

3.1.4 continuous scale
scale with a continuum of possible values

EXAMPLE Interval scale and ratio scale.

NOTE 1 A continuous scale can be transformed into a discrete scale, by grouping "values". This inevitably leads to some loss of information. Often the resulting discrete scale will be ordinal.

NOTE 2 Scale resolution can be adversely affected by measurement system limitations. Such measurement limitations can, sometimes, give rise to measurements being represented on a discrete, ordinal, scale.

[SOURCE: ISO 3534-2:2006, **1.1.4**]

16.5.10 Source

If a terminological entry is reproduced from another document, the source should be given at the end of the entry. If any changes are made to the original terminological entry, this should be indicated, along with a description of what has been modified. A document given as a source of a terminological entry is informative.

EXAMPLE

3.1.2 terminological entry
part of a terminological data collection which contains the terminological data (**3.1.3**) related to one concept (**3.2.1**)

NOTE A terminological entry prepared in accordance with the principles and methods given in ISO 704 follows the same structural principles whether it is monolingual or multilingual.

[SOURCE: ISO 1087-1:2000, **3.8.2**, modified – note has been added.]

16.5.11 Footnotes

Footnotes to any part of a terminological entry should not include provisions of the document (see **26.5**).

A summary of how to use notes, footnotes and commentaries within documents is given in **24.1**.

16.6 Overview of the main elements of a terminological entry

Not applicable in the UK.

16.7 Other elements of a terminological entry

Other data categories may be included in a terminological entry, for example:

- country codes;
- grammatical information; and
- pronunciation.

General requirements and examples are given in BS ISO 10241-1.

17 Symbols and abbreviated terms

17.1 Purpose or rationale

The symbols and abbreviated terms subclauses provide a list of the symbols and abbreviated terms used in the document, along with their definitions.

17.2 Normative or informative?

The symbols and abbreviated terms subclauses are normative elements.

17.3 Mandatory, conditional or optional?

The symbols and abbreviated terms subclauses are optional elements.

17.4 Numbering and subdivision

It is not necessary to number the symbols.

The symbols and abbreviated terms, if present, should be combined with the terms and definitions in order to bring together terms and their definitions, symbols and abbreviated terms under an appropriate composite title, for example “Terms, definitions, symbols and abbreviated terms”. If both symbols and abbreviated terms are included, the symbols should be numbered as 3.2 and the abbreviated terms as 3.3.

17.5 Specific principles and rules

17.5.1 General

It is not mandatory to have either a symbols subclause or an abbreviated terms subclause, but if either is present then it should be comprehensive, listing every symbol/abbreviated term in the document.

If there is no symbols subclause, the meaning of the symbols used in an equation should be explained in a formal, consistent style immediately below the equation in which they appear, following the principles set out in **27.5**. If there is a symbols subclause, the symbol meanings should not be duplicated below the equations.

17.5.2 Introductory wording

If all the specific symbols are provided in Clause 3, use the following introductory text:

For the purposes of this document, the following symbols apply.

If all the specific abbreviated terms are provided in Clause 3, use the following introductory text:

For the purposes of this document, the following abbreviated terms apply.

17.5.3 Permitted content

Only symbols and abbreviated terms used in the text should be listed.

Unless it is necessary to list symbols in a specific order to reflect technical criteria, all symbols should be listed in alphabetical order in the following sequence:

- upper case Latin letter followed by lower case Latin letter (*A*, *a*, *B*, *b*, ...);
- letters without indices preceding letters with indices, and with letter indices preceding numerical ones (*B*, *b*, *C*, C_m, C_2, *c*, *d*, d_{ext}, d_{int}, d_1, ...);
- Latin letters followed by Greek letters (*a, b,* … *α*, *β*, …); and
- any other special symbols.

Symbols should be set out in tabular format, with the symbol on the left and the definition on the right. Where appropriate, the unit of measurement should be given after the definition, spelled out in words and followed by the unit symbol in parentheses. The definitions for symbols should be drafted in the same way as a definition of any other term (see Clause **16**), including the use of notes (see **16.5.8**) and sources (see **16.5.9**). The symbols themselves should be presented as described in **27.5**.

EXAMPLE 1

A	cross-sectional area of pipe wall, in square millimetres (mm^2)
a	design factor
C_f	flattening coefficient
D	outside diameter of a pipe, as used in testing and buckling calculations, in metres (m)
D_i	inside diameter of a pipe, in millimetres (mm)
D_{max}	maximum (oval) outside diameter, in metres (m)
D_{min}	minimum (oval) outside diameter, in metres (m)
v	Poisson's ratio

Abbreviated terms should be set out in tabular format, with the abbreviation on the left and the term in full on the right. The definitions for abbreviated terms should be in lower case, except for any capital letters required by the normal written form in running text.

Abbreviations of the names of organizations, e.g. BSI and ISO, should not be included in the Abbreviated terms subclause.

EXAMPLE 2

ADB	*The Building Regulations 2010 – Approved Document B: Fire safety*
AGI	above-ground installation
ALARP	as low as reasonably practicable
CE	carbon equivalent
CIPS	close interval potential survey

18 Test methods

18.1 Purpose or rationale

Test methods specify the procedure for determining the values of characteristics or for checking conformity to stated requirements. Using a standardized test method facilitates comparability of the results.

Test methods may be presented as separate clauses, or be incorporated in the provisions, or be presented as annexes (see Clause **20**) or as separate parts (see **6.3**). A test method should be prepared as a separate document if it is likely to be referred to in a number of other documents.

18.2 Normative or informative?

The test methods clause is a normative element.

18.3 Mandatory, conditional or optional?

The test methods clause is a conditional element.

18.4 Numbering and subdivision

Test methods may be subdivided in the following order (where appropriate):

a) principle;

b) reagents and materials (see **18.5.3**);

c) apparatus (see **18.5.4**);

d) preparation and preservation of test samples and test pieces;

e) procedure;

f) expression of results, including method of calculation and precision of the test method; and

g) test report.

NOTE It is expected that all of these elements will be present in a standalone test, e.g. an annex or separate standard.

It is also permissible to include a clause on pass/fail criteria (see **18.5.9**).

When health, safety or environmental warnings are necessary, these should be placed next to the relevant content in the test method. General warnings should be placed at the beginning of the test method. Warnings and cautions are covered in more detail in **24.8**.

18.5 Specific principles and rules

18.5.1 General

If appropriate, tests should be identified as, for example, type tests, performance tests, sampling tests, routine tests.

The document should specify the sequence of testing if the sequence can influence the results.

Requirements, sampling and test methods are interrelated elements of product standardization and should be developed as a cohesive whole even though the different elements may appear in separate clauses in a document, or in separate documents.

NOTE 1 This is of critical importance. A test method has to measure the parameter that is being specified and conversely the parameter specified has to be the one that the test method is testing or measuring. It is also essential that the units in which the parameter is specified and the units in which the test method measures that parameter are the same.

Sampling is a conditional element that specifies the conditions and methods of sampling, as well as the method for the preservation of the samples. This element may appear at the beginning of the test method. When a specific sampling method is necessary, this should be clearly stated in the test method.

When drafting test methods, it is important to take into account documents for general test methods and related tests for similar characteristics in other documents.

Non-destructive test methods should be chosen whenever they can replace, within the same level of confidence, destructive test methods.

Test methods should conform to the metrological principles concerning validation, measurement traceability and estimation of measurement uncertainty described in BS EN ISO/IEC 17025:2017,**7.2**, **7.6** and **7.7**. Other documents that might be applicable include ISO/IEC Guide 98-3 and ISO/IEC Guide 99. Requirements related to testing

equipment should conform to the provisions concerning accuracy and calibration specified in BS EN ISO/IEC 17025:2017, **6.4**.

Guidance on the drafting of methods of chemical analysis is given in BS ISO 78-2. Much of BS ISO 78-2 is also applicable to test methods for products other than chemical products.

Documents specifying test methods involving the use of hazardous products, apparatus or processes should include a general warning and appropriate specific warnings. For recommended wording, see ISO/IEC Guide 51. For guidance on the appropriate location of such warnings, see BS ISO 78-2.

*NOTE 2 Rules for warnings and cautions generally are given in **24.8**.*

A document which specifies test methods should not imply any obligation to perform any kind of test. It should merely state the method by which the test, if required and referred to (e.g. in the same or another document, in a regulation, or in contracts), is to be performed.

If a statistical method for the assessment of the conformity of a product, process or service is specified in the document, any statements of compliance with the document relate only to the conformity of the population or the lot.

If it is specified in the document that every single item is to be tested in accordance with the document, any statements concerning the conformity of the product to the document mean that every single item has been tested and that each has fulfilled the corresponding requirements.

If there are test methods in use that differ from those most acceptable for general application, this should not be a reason for not specifying the most acceptable test method in a document.

Methods should be stated precisely and in sufficient detail for laboratories to be able to adopt identical procedures. It is advisable wherever possible for methods to be validated by at least two laboratories before being included in a document, so that methods are not specified in standards without having been tried out in practice. If this is not practicable, there still needs to be confidence that the methods will be repeatable and reproduceable and that the results can be relied upon.

If a method needs to rely upon a reference material because the property or characteristic cannot be described in terms of the system of units of measurement being used, the reference material should be called up as such.

The material should preferably be specified as a certified reference material, i.e. accompanied by, or traceable to, a certificate stating the property value concerned, issued by an organization that is generally accepted as technically competent. Guidance on the contents of certificates of reference materials is given in PD ISO Guide 31.

18.5.2 Numbering

In order to facilitate cross-referencing, individual reagents, materials and apparatus should be numbered, even if there is only one.

In the associated text where the procedure is given, a cross-reference to the listed item may be provided.

EXAMPLE
Carefully remove the membrane filter (**5.6**) from the stand (**5.1**) with disinfected forceps (**5.12**).

18.5.3 Reagents and materials

The title should be “Reagents” or “Materials” or “Reagents and materials”, as appropriate. It is a conditional element giving a list of any reagents and materials used.

The content of a reagents and materials clause usually comprises an optional introductory text together with a list detailing one or more reagents and materials.

The introductory text should be used only to specify general provisions to which cross-reference is not made. Any item that can be cross-referenced should not be included in this text but should be listed as a distinct entry as shown in the example below.

*NOTE The introductory text is not a hanging paragraph (see **22.3.3**), as the clause consists of a list of reagents and materials and not subclauses.*

The following example shows the presentation style used (for further examples of drafting, see BS ISO 78-2).

EXAMPLE

5 Reagents

Use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

5.1 *Cleaning medium*, for example methanol or water containing a few drops of liquid detergent.

18.5.4 Apparatus

The apparatus subclause is a conditional element giving a list of the apparatus used in the document. Wherever possible, equipment produced by a single manufacturer should not be specified. Where such equipment is not readily available, this clause should include such specifications for the equipment as to enable comparable testing to be conducted by all parties.

*NOTE 1 Rules regarding the use of trade names and trademarks are given in Clause **31**.*

The content of an apparatus clause usually comprises an optional introductory text together with a list detailing one or more pieces of apparatus.

The introductory text should be used only to specify general provisions to which cross-reference is not made. Any item that can be cross-referenced should not be included in this text but should be listed as a distinct entry as shown in the example below.

*NOTE 2 The introductory text is not a hanging paragraph (see **22.3.3**), as the clause consists of a list of apparatus and not subclauses.*

The following example shows the presentation style used (further examples of drafting are given in BS ISO 78-2).

EXAMPLE

A.2 Apparatus

The usual laboratory apparatus and, in particular, the following shall be used.

A.2.1 *Sample divider*, consisting of a conical sample divider or multiple-slot sample divider with a distribution system, for example “Split-it-right” sample divider (see Figure A.1).

A.2.2 *Sieve*, with round perforations of diameter 1.4 mm.

A.2.3 *Tweezers*.

A.2.4 *Scalpel*.

A.2.5 *Paintbrush*.

A.2.6 *Steel bowls*, of diameter 100 mm ±5 mm; seven per test sample.

A.2.7 *Balance*, which can be read to the nearest 0.01 g.

18.5.5 Alternative test methods

If more than one adequate test method exists for a characteristic, only one should in principle be specified. If, for any reason, more than one test method is to be specified, a referee test method (often called reference test method) may be identified in the document to resolve doubts or dispute.

18.5.6 Choice of test methods according to accuracy

When choosing a test method, establish the accuracy of the method that will be needed relative to the required value and tolerance of the characteristic being assessed.

The chosen test method should provide an unambiguous determination of whether the sample meets the specified requirement.

When it is technically necessary, each test method should incorporate a statement as to its limit of accuracy.

18.5.7 Test equipment

If, in preparing a document related to a product, it is necessary to standardize some kind of testing equipment that is likely to be used for testing other products as well, it should be dealt with in a separate document, prepared in consultation with the committee dealing with such equipment.

18.5.8 Test report

This clause specifies which information is to be included in the test report. The clause should require information to be given on at least the following aspects of the test:

- the sample;
- the standard used (including its year of publication);
- the method used (if the standard includes several);
- the result(s), including a reference to the clause which explains how the results were calculated;
- any deviations from the procedure;
- any unusual features observed; and
- the date of the test.

The test report should only include information that is explicitly required by the test method. It should not contain additional elements that the test method does not call for.

18.5.9 Pass/fail criteria

This clause sets out the criteria that would need to be met in order for a product to be deemed to have passed the test. It does not specify requirements.

NOTE Tests and requirements are two separate things and are not to be confused. The phrase "test requirements" is deprecated.

19 Marking, labelling and packaging

19.1 Purpose or rationale

Marking, labelling and packaging are important aspects related to product manufacturing and procurement that frequently require a standardized approach, particularly in safety-critical applications.

19.2 Normative or informative?

Marking, labelling and packaging clauses are usually normative elements although exceptions can exist (e.g. when only recommendations are made concerning marking, labelling and packaging).

19.3 Mandatory, conditional or optional?

Marking, labelling and packaging clauses are conditional elements.

19.4 Specific principles and rules

19.4.1 General

Marking, labelling and packaging are complementary aspects that should be included wherever relevant, particularly for product standards concerning consumer goods.

If necessary, the means of marking should also be specified or recommended.

This element should not specify or recommend marks of conformity (including CE or UKCA marking). Such marks are normally applied under the rules of a certification system (see ISO/IEC Guide 23). Information on the marking of products with reference to a standards body or its documents is given in BS EN ISO/IEC 17050-1 and BS EN ISO/IEC 17050-2.

Information on safety standards and aspects related to safety is given in ISO/IEC Guide 51.

This element may be supplemented by an informative annex giving an example of information necessary for the purposes of procurement.

Where a system for designation of internationally standardized items is necessary, use the principles described in Annex C.

Where a marking clause is given, the distinction between unilateral claims of compliance and third-party certification should be included in a footnote to the clause.

If a document containing a marking clause is amended, the date in the marking clause does not necessarily have to be updated to include the amendment date.

19.4.2 Requirements concerning marking, labelling and packaging of products

Documents containing a reference to the marking of the product should specify the following, where applicable:

a) the content of any marking that is used to identify the product, for example:
   1) the manufacturer (name and address);
   2) responsible supplier (trade name, trademark or identification mark);
   3) the marking of a product itself [e.g. manufacturer's or supplier's trademark, model or type number, designation (see Annex C)]; and
   4) the identification of different sizes, categories, types and grades;
b) the means of presentation of such marking, for example by the use of plates (sometimes called "nameplates"), labels, stamps, colours, threads (in cables), as appropriate;
c) the location on the product, or in some cases on the packaging, where the marking is to appear;
d) requirements for the labelling and packaging of the product (e.g. handling instructions, hazard warnings, date of manufacture); and
e) other information as required.

NOTE 1 The means of presentation and location of the marking should not be based on assumptions about the technology available to purchasers of the product, and should not limit access to the information.

If the document requires the application of a label, the document should also specify the nature of the labelling and how it is to be attached, affixed or applied to the product or its packaging.

Symbols specified for marking should conform to relevant documents published by BSI, CEN, CENELEC, ISO and IEC.

NOTE 2 Documents relating to packaging can be found under the ICS classification 55 in the ISO and IEC Catalogues.

19.4.3 Requirements concerning documentation accompanying the product

Documents may require that the product be accompanied by some kind of documentation (e.g. test report, handling instructions, other information appearing in the product packaging). When relevant, the content of such documentation should be specified.

NOTE A classification and designation system of such documentation for plants, systems and equipment is provided in BS EN 61355-1. Rules for such documentation in administration, commerce and industry can be found under the ICS classification 01.140.30.

19.4.4 Warning notices and instructions

In product standards, it is sometimes necessary to specify that the product be accompanied by warning notices or by instructions to the installer or user, and to specify their nature. Such requirements concerning installation or use may be included in a separate part of the series or a separate document, because they are not requirements applicable to the product.

Such warning notices or instructions may also be included as part of the documentation accompanying the product (see **19.4.3**).

20 Annexes

20.1 Purpose or rationale

Annexes are used to provide additional information to the main body of the document and are developed for several reasons, for example:

- when the information or table is very long and including it in the main body of the document would distract the user; or
- to set apart special types of information (e.g. software, example forms, results of interlaboratory tests, alternative test methods, tables, lists, data); or
- to present information regarding a particular application of the document.

20.2 Normative or informative?

Annexes can be normative or informative elements.

Normative annexes provide additional normative text to the main body of the document. They contain information which forms an integral part of the document but which is more appropriately presented separately from the main text, e.g. a test method in a specification.

- In a specification or test method, an annex is normative if it contains requirements or procedural instructions.
- In a code of practice, an annex is normative if it contains recommendations or procedural instructions.
- Guides do not have normative annexes.

Informative annexes provide additional information intended to assist the understanding or use of the document.

- In a specification or test method, an annex is informative if it contains recommendations, permissions, possibilities, capabilities or statements.
- In a code of practice, an annex is informative if it contains permissions, possibilities, capabilities or statements.
- In a guide, an annex is always informative.

The status of the annex (informative or normative) should be made clear by the way in which it is referred to in the text and should be stated under the heading of the annex.

EXAMPLE	
[…] see Annex A for additional information […]	The status of Annex A is informative.
[…] the test method shall be carried out as specified in Annex B […]	The status of Annex B is normative.

20.3 Mandatory, conditional or optional?

Annexes are optional elements.

20.4 Numbering and subdivision

Annexes should appear after the main text, in the order in which they are first cited in the text. Each annex should be designated by a heading comprising the word “Annex” followed by a capital letter, starting with “A”, for example “Annex A”. The annex heading should be followed by the indication “(normative)” or “(informative)”, and by the title.

EXAMPLE 1

Annex A (informative)
Example form

A single annex should be designated “Annex A”.

Annexes may be subdivided into clauses, subclauses, paragraphs and lists. A clause should not be created unless there is at least one further clause in the annex.

Numbers given to the clauses, subclauses, tables, figures and mathematical formulae of an annex should be preceded by the letter designating that annex followed by a full stop. The numbering should start afresh with each annex.

EXAMPLE 2

In the case of Annex A, the first clause would be numbered **A.1**, the first figure would be Figure A.1, the first table would be Table A.1 and the first mathematical formula would be Formula (A.1).

20.5 Specific principles and rules

Each annex should be explicitly referred to within the text, using roman type.

NOTE 1 Annexes may be referred to in other annexes, but there should always be a reference in the main text (or, for informative annexes, in the preliminary elements).

NOTE 2 A reference to a figure or table within the annex is not an explicit reference to the annex.

EXAMPLE 1

“Annex B provides further information…”

“Use the methods described in Annex C”

"…shall be in accordance with Annex B"

A normative annex should be cited normatively in the text.

- In a specification it should be cited by means of a requirement.

> EXAMPLE 2
> "When tested in accordance with Annex A, the widget shall not crack."
> "If the widget is intended for use in vehicles it shall meet the additional requirements specified in Annex B."
> "The diameter of the widget shall be not less than the minimum specified in Annex C for the appropriate application."

- In a code of practice it should be cited by means of a recommendation.

> EXAMPLE 3
> "If the widget is intended for use in vehicles it should be in accordance with the additional recommendations given in Annex B."
> "The process should be carried out in the order shown in Annex C."

- In a test method it should be cited by means of an instruction or a requirement.

> EXAMPLE 4
> "Follow the procedure given in Annex A."
> "Align the apparatus as shown in Annex B."
> "The apparatus shall conform to the dimensions specified in Annex C."

An informative annex should be cited informatively in the text.

- In a specification or a test method it should be cited by means of a recommendation or a statement in a note or commentary.

> EXAMPLE 5
> "Guidance for the specifier is given in Annex A."
> "The fixings recommended in Annex B are deemed to meet this requirement; others may be used if they can be shown to lead to the same results."

- In a code of practice or guide it should be cited by means of a statement in a note or commentary.

> EXAMPLE 6
> "Guidance on widget design is given in Annex F."
> "An example of a suitable form is given in Annex G."

The drafting of an annex, whether normative or informative, should follow the same rules as are applicable within the main text for the particular content and document type (see Clause **7**, Clause **28**, Clause **29** and Annex G).

Informative annexes should not contain provisions.

21 Bibliography

21.1 Purpose or rationale

The Bibliography lists, for information, those documents which are cited informatively in the document, as well as other information resources.

21.2 Normative or informative?

The Bibliography is an informative element. It should not contain requirements, permissions or recommendations.

21.3 Mandatory, conditional or optional?

The Bibliography is a conditional element. Its inclusion is dependent on whether informative references are present in the document.

21.4 Numbering and subdivision

The Bibliography should not have a clause number. It may be subdivided in order to group the referenced documents under descriptive headings. Such headings should not be numbered.

Standards publications listed as informative references are not numbered but should be presented in alphanumerical order.

If there are both standards and non-standards publications listed as informative references, the standards publications should be given first, under a heading of “Standards publications”. Non-standards publications should then appear under a heading of “Other publications”, in the order in which they are first cited. Each referenced non-standards publication should be preceded by an Arabic numeral in square brackets, e.g. “[12]”, corresponding to the reference given in the text (see **10.3**).

If only one type of publication is listed (i.e. standards publications or non-standards publications), the “Standards publications” and “Other publications” subheadings should not be used.

The Bibliography may also list documents under such headings as “Further reading”, “Useful websites”, etc., although it is preferable for all relevant documents to be cited explicitly in the text so that their relevance is clear to the reader. These lists may be further subdivided under subject headings. Such headings should not be numbered and should not be listed in the table of contents. They should always appear as the final item in the Bibliography. Standards should not be listed in “Further reading” sections and should always be cited explicitly in the text.

21.5 Specific principles and rules

21.5.1 General

The Bibliography, if present, should appear after the last annex.

21.5.2 Introductory wording

The list of informative references should be introduced by the following wording:

> For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

If the list is divided into standards publications and other publications (see **21.4**), this wording should appear after the “Standards publications” heading.

21.5.3 Referencing

The Bibliography should list all informative references given in the document, including references to legislation (see **10.7**) and sources of terminological entries (see **16.5.9**). If a publication is referenced both normatively and informatively, it should be listed only in the Normative references clause.

Referenced documents and information resources listed may be dated or undated (see **10.4** and **10.5**).

EXAMPLE

In the following case, the citation is not normative but informative. The document cited should be listed not in the Normative references clause but in the Bibliography:

Recommendations for business continuity are given in BS 25999-1.

For a specification, in the following case, the citation is normative and the document should be listed in the Normative references clause:

Connectors shall conform to the electrical characteristics specified in IEC 60603-7-1.

For a code of practice, in the following case, the citation is normative and the document should be listed in the Normative references clause:

Sprinkler systems should be designed and installed in accordance with BS EN 12845.

21.6 Index

The index is an optional element. If present, the index should appear as the final element of the document.

Reference should be to numbered elements of the document. Page numbers should not be given.

It is acceptable to have index entries that refer to more than one document, provided that a clear key is included to the different documents. References for the key should be short and should not be capable of being confused with any other reference system in the text. If a simple numbering system is required, references [A], [B], [C] should be used in preference to [1], [2], [3] to avoid confusion with bibliographic references, but other methods of identification may be used, e.g. [EN], [P1], [P2] to indicate a European standard and parts 1 and 2 of a British Standard, respectively. !

Indexing is a skilled activity, and committees are strongly advised to obtain advice from BSI at the earliest opportunity if it is considered that an index might be necessary.

Section 4: Components of the text

22 Sections, clauses and subclauses

22.1 Purpose or rationale

Clauses and subclauses serve as the basic components in the subdivision of the content of a document.

In very large or complex documents it can be useful to divide the text into sections, in order to be able to group related material under generic headings and to avoid going down to six levels of heading (see **22.3.2**).

NOTE This is not to be confused with the discontinued practice of issuing a document in separate sections and subsections, and refers only to the division of text within a single document. Sections are now only used as internal subdivisions of the text.

22.2 Title

Each clause and subclause should have a title.

Titles should start with a capital letter and all subsequent words should be lower case, except for proper nouns and abbreviated terms.

NOTE Terms that are capitalized by convention may be counted as proper nouns for this purpose.

22.3 Numbering, subdivision, hanging paragraphs and numbered paragraphs

22.3.1 Numbering

The clauses in each document or part should be numbered with Arabic numerals, starting with 1 for the Scope (see Figure 2).

The numbering of clauses should be continuous up to but excluding any annexes (see Clause **20**).

If sections are used, they should be numbered with Arabic numerals, starting with 1 and preceded in each case by the word “Section”.

Sections should be numbered independently of clauses, i.e. the clause numbering should continue sequentially throughout the document and should not start again at each new section.

22.3.2 Subdivision

A subclause is a numbered subdivision of a clause. A clause may be subdivided into subclauses as far as the fourth level (e.g. 5.1.1.1.1, 5.1.1.1.2).

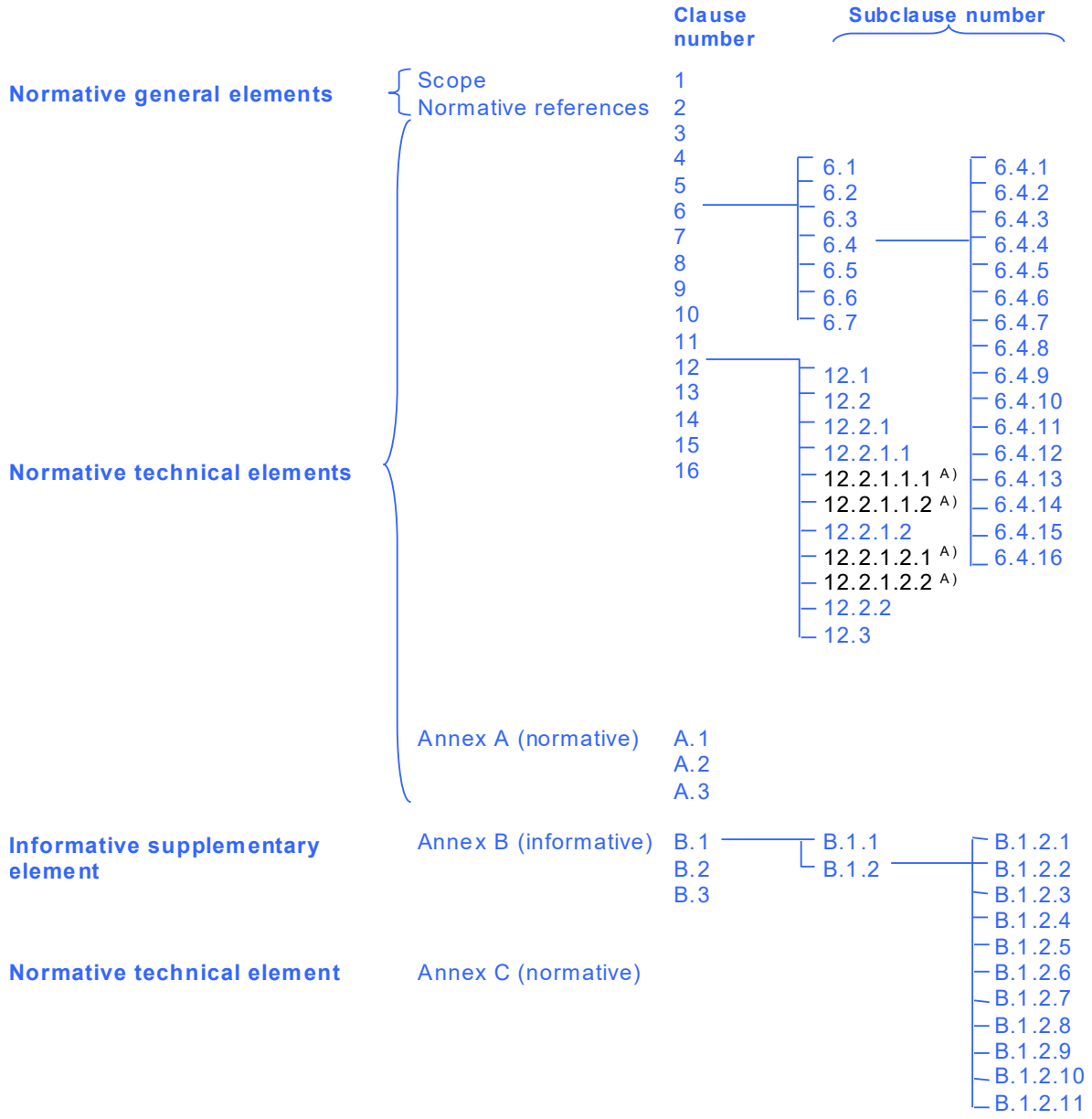
*NOTE Numbered paragraphs do not count as subclauses and are not numbered as part of the same sequence as the subclause headings (see **22.3.4**).*

Too many levels of subdivision should be avoided, as this can make it hard for the user to understand the document.

Figure 1 provides an example of numbering of divisions and subdivisions.

A subclause should not be created unless there is at least one further subclause at the same level. For example, text in Clause 10 should not be designated subclause “10.1” unless there is also a subclause “10.2”.

Figure 1 – Example of numbering of divisions and subdivisions



A) Maximum of five levels, i.e. a clause and four levels of subclauses.

22.3.3 Hanging paragraphs

"Hanging paragraphs" should be avoided since reference to them is ambiguous.

In the example given in Figure 2, the hanging paragraph indicated cannot be uniquely identified as being in "Clause 5" since the paragraphs in 5.1 and 5.2 also form part of Clause 5. To avoid this problem it is necessary to identify the hanging paragraph as subclause "5.1 General" (or other suitable title) and to renumber the existing 5.1 and 5.2 accordingly (as shown), or to move the hanging paragraph elsewhere, or to delete it.

Figure 2 – Example of a hanging paragraph (left) and one way to avoid it (right)

Incorrect		Correct
5 Uncertainty of the certified value The combined expanded uncertainty of the measurement is calculated.... **5.1 Budget of uncertainty** [...]	hanging paragraph	**5 Uncertainty of the certified value** **5.1 General** The combined expanded uncertainty of the measurement is calculated.... **5.2 Budget of uncertainty** [...]

The following items do not constitute hanging paragraphs and are therefore acceptable:

- the opening sentence of the terms and definitions clause – this introduces a list of numbered definitions, not subclauses;
- the opening sentences in clauses listing reagents and apparatus in a test method; and
- notes, commentaries, warnings and cautions placed at the beginning of a clause or subclause.

22.3.4 Numbered paragraphs

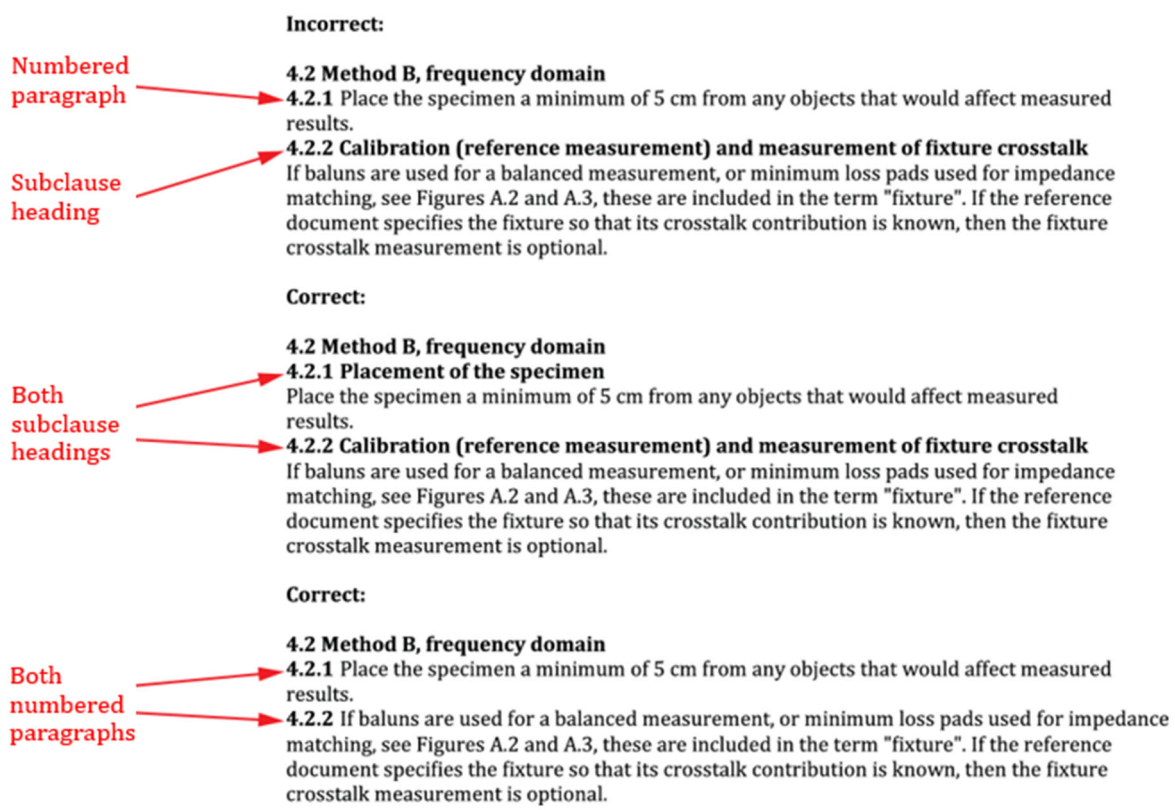
A paragraph is a subdivision of a clause or subclause. Paragraphs may be numbered or unnumbered.

If numbered paragraphs are used, they should be used consistently within a single clause or subclause, i.e. number all of the paragraphs or none of them. Numbered paragraphs are particularly useful where a series of instructions are given that have to be followed in a specific order, or where it is necessary to cross-refer to a specific provision. More discursive text as a general rule is not numbered.

Within a clause or subclause, the use of numbering should be uniform for paragraphs and subclauses at the same level. For example, if 10.1.1 is a numbered paragraph, 10.1.2 should also be a numbered paragraph and not a subclause heading. Figure 3 shows examples of correct and incorrect use of paragraph numbering.

NOTE In ISO drafting, numbered paragraphs are referred to as subclauses without titles.

Figure 3 – Correct and incorrect use of paragraph numbering



22.4 Referencing

Use, for example, the following forms for references to sections, clauses, subclauses and numbered paragraphs, using bold type for the numbers and roman type for the words “Section” and “Clause”:

- “the recommendations given in Section **9**”
- “in accordance with Clause **4**”
- “details as given in **4.1.1**”
- “the requirements given in **B.2**”
- “the methods described in **5.3** provide further information on…”
- “the steps detailed in **6.5.2.1** to **6.5.2.4**”

It is preferable that sentences do not begin with a reference to a clause or subclause. If it is necessary to begin a sentence with a reference to a subclause, the word “Subclause” should be inserted so that the sentence does not begin with a number.

EXAMPLE	
Preferred:	Requirements for […] are specified in **6.2**.
Accepted:	Subclause **6.2** specifies requirements for […].
Incorrect:	**6.2** specifies requirements for […].

23 Lists

23.1 Purpose or rationale

A list serves to subdivide information to aid understanding.

23.2 Title

Lists do not have a title. They should be preceded by an introductory phrase.

23.3 Numbering and subdivision

Lists can be numbered or unnumbered. Lists can be subdivided.

For numbered lists, each item should be preceded by a lower case letter followed by a single closing parenthesis, i.e. “a), b), c)”. For unnumbered lists, each item is preceded by a bullet.

NOTE It can be useful to number list items if, for example, there is a need to refer to individual items in the text, or the list sets out a series of steps to be followed in order.

If subdivision of an item is necessary, each subdivided item should be preceded by an Arabic numeral followed by a single closing parenthesis, i.e. “1), 2), 3)”. If a further level of subdivision is necessary, each subdivided item should be preceded by a lower case roman numeral followed by a single closing parenthesis, i.e. “i), ii), iii)”, or by a bullet. Where a list is subdivided, the second level should be indented from the first, and the third level should be indented from the second.

If there is more than one list within a single numbered subdivision of the text, the second list should be numbered “1), 2), 3)” and the third “i), ii), iii)”. Primary lists should not be indented.

There should not be more than three numbered lists within a single numbered subdivision of the text. If there is a need for a fourth list, it would need to be unnumbered (bulleted); however, it is preferable to restructure the text such that this is not necessary.

Numbering of lists in notes and commentaries is independent of the numbering of lists in the main text.

Some examples are given below.

EXAMPLE 1 (simple subdivided numbered list)

The following basic principles apply to the drafting of definitions.

a) The definition shall have the same grammatical form as the term:
   1) to define a verb, a verbal phrase shall be used; and
   2) to define a singular noun, the singular shall be used.
b) The preferred structure of a definition is a basic part stating the class to which the concept belongs, and another part enumerating the characteristics that distinguish the concept from other members of the class.

EXAMPLE 2 (simple bullet list)

No switch is required for any of the following categories of apparatus:

- apparatus having a power consumption not exceeding 10 W under normal operating conditions;
- apparatus having a power consumption not exceeding 50 W, measured 2 min after the application of any of the fault conditions; and
- apparatus intended for continuous operation.

EXAMPLE 3 (complex numbered list with multiple subdivisions)

Power supplies should meet the following specific recommendations.

a) A secondary power supply independent of the primary power supply to the building should be provided which is of sufficient capacity to maintain in operation for at least 3 h the following:

   1) any fire and rescue service communication systems; and

   2) any other fire protection or fire-fighting equipment, except automatic fire detection and fire alarm systems and evacuation lifts.

b) Where the secondary electrical supply is to be taken from a separate substation to that supplying the primary electrical supply, the following criteria should be met.

   1) The two independent substations should be adequately separated. Where the substations are located within the building they serve, the following criteria should be met:

      i) each substation should be enclosed within a fire-resisting structure having a minimum of 2 h fire resistance; and

      ii) the two substations should be located in two separate parts of the building.

   2) Supply cables from the high-voltage substations should enter directly the high-voltage/ low-voltage switchrooms and not pass through the building.

EXAMPLE 4 (multiple numbered lists within a single subclause)

Two basic methods of fire spread between buildings are addressed:

a) direct impingement of flames from one building on another; and

b) radiation (possibly supplemented by burning debris).

Fire spread from building to building by radiation is dependent on:

1) the distance between and orientation of the building of origin and the neighbouring structure (radiator to receiver);

2) the extent of the building surface capable of transmitting heat; and

3) the intensity (emissive power) of the source radiation.

The radiative energy emitted by the building of fire origin is dependent on the size and severity of the fire.

For the purposes of the recommendations given in this clause, it is assumed that:

i) fire does not spread beyond the compartment of origin;

ii) the compartment of origin has reached flashover; and

iii) all unprotected areas of one compartment are radiating with equal intensity.

23.4 Referencing

The purpose of a list should be made clear by its context.

If cross-references to list items are necessary, a numbered list should be used. Within a subdivision, each list item in a numbered list should have a unique identifier. Numbering restarts at each new clause or subclause.

Use, for example, the following forms for references to lists:

- "as specified in **3.1**b)"
- "the requirements given in **B.2**c)"

If there is a need to refer to an unordered list item in another document, the following form should be used:

"as specified in ISO/IEC 15888:1996, **3.1**, second list item".

Where a cross-reference to a list item appears in a statement within parentheses, nested brackets should be used, for example:

"[see **4.1**b)]"

23.5 Specific principles and rules

If a list is introduced by a grammatically incomplete statement, the statement should be followed by a colon. The wording of each item should form a complete sentence when read with the opening statement. Each item should begin with a lower case letter and end with a semicolon, apart from the last item, which should end with a full stop. It is permissible to continue the opening statement to complete the sentence after the end of the list, but it is preferable to avoid doing so. The words "and", "or", or "and/or" should appear at the end of the penultimate list item, after the semi-colon.

If a list is introduced by a grammatically complete sentence, the sentence should end with a full stop. Each item should form a grammatically complete sentence and should begin with a capital letter and end with a full stop.

All the items in a single list should be phrased consistently in terms of grammar and syntax.

NOTE These rules do not apply to the list of organizations in the Foreword of a PAS or BSI Flex, which is not punctuated.

EXAMPLE 1 (list introduced by grammatically incomplete statement)

Door equipment and provisions along escape routes should be designed such that:

a) all doors on escape routes can be made readily available for use;

b) any doors, gates or shutters that are required to be locked in the open position can be so locked;

c) where practicable, fire doors are in positions where they are not likely to be wedged or propped open. Where this is not practicable, fire doors should be provided with hold-open devices on an automatic release mechanism; and

d) any fire door that subdivides a corridor is provided with vision panel.

EXAMPLE 2 (list introduced by grammatically complete statement)

Line graphs have the following disadvantages.

a) Users sometimes tend to interpolate and extrapolate wrongly from the data when discrete categories are represented along the x-axis.

b) The message becomes obscure when the values of the data sets overlap.

EXAMPLE 3 (use of "and" in a subdivided list)

Fire safety information should:

a) provide sufficient information to allow emergency services to develop and implement a safe and effective tactical plan for use during an emergency response, based on:

   1) the user profile of occupants in the asset;

   2) what fire safety risks exist in the asset; and

   3) what measures are available to the emergency services in the event of a fire; and

b) demonstrate compliance during audit processes.

24 Notes

24.1 Purpose or rationale

Notes are used for giving additional information intended to assist the understanding or use of the text of the document. The document should be usable without the notes.

Rules on notes to figures are given in **28.5.4**.

Rules on notes to tables are given in **29.5.1**.

Table 4 summarizes how to use notes, footnotes and commentaries within documents.

Table 4 – Use of notes and footnotes within documents

Context	Element	Rule	Numbering	Designation	Provisions permitted?
In termino-logical entries	Note	**16.5.9**	Numbered if more than one; numbering restarts for each new entry	NOTE 1, NOTE 2, …	No requirements (shall), recommendations (should) or permissions (may)
	Commentary	**16.5.9**	*Not applicable*	*Not applicable*	*Terminological entries do not have commentaries*
	Footnote	**16.5.11**	Sequential throughout the document	Normally with Arabic numerals	No requirements (shall), recommendations (should) or permissions (may)
In the text	Note	Clause **24**	Numbered if more than one; numbering restarts for each new clause or subclause	NOTE 1, NOTE 2, …	In a specification or test method: no requirements (shall) or imperative mood In a code of practice or guide: no requirements (shall), recommendations (should) or imperative mood
	Commentary	**24.7**	Number taken from the relevant clause, subclause or annex	COMMENTARY ON CLAUSE **5** COMMENTARY ON **5.5** COMMENTARY ON ANNEX A	In a specification or test method: no requirements (shall) or imperative mood In a code of practice or guide: no requirements (shall), recommendations (should) or imperative mood
	Footnote	Clause **26**	Sequential throughout the document	Normally with Arabic numerals	No requirements (shall), recommendations (should) or permissions (may)
Figures	Notes to figures	**28.5.4**	Numbered if more than one; numbered independently from the notes to the text; numbering restarts for each new figure	NOTE 1, NOTE 2, …	In a specification or test method: no requirements (shall) or imperative mood In a code of practice or guide: no requirements (shall), recommendations (should) or imperative mood
	Commentary	**24.7**	Number taken from the relevant clause, subclause or annex	COMMENTARY ON FIGURE 1	In a specification or test method: no requirements (shall) or imperative mood In a code of practice or guide: no requirements (shall), recommendations (should) or imperative mood

Table 4 – Use of notes and footnotes within documents

Context	Element	Rule	Numbering	Designation	Provisions permitted?
	Footnotes to figures	**28.5.5**	Numbered if more than one; numbered independently from the footnotes to the text; numbering restarts for each new figure	Normally superscript upper case letter followed by a closing bracket, starting with "A)"	In a specification or test method: no requirements (shall) or imperative mood In a code of practice or guide: no requirements (shall), recommendations (should) or imperative mood
Tables	Notes to tables	**29.5.1**	Numbered if more than one; numbered independently from the notes to the text; numbering restarts for each new table	NOTE 1, NOTE 2, …	In a specification or test method: no requirements (shall) or imperative mood In a code of practice or guide: no requirements (shall), recommendations (should) or imperative mood
	Commentary	**24.7**	Number taken from the relevant clause, subclause or annex	COMMENTARY ON TABLE 1	In a specification or test method: no requirements (shall) or imperative mood In a code of practice or guide: no requirements (shall), recommendations (should) or imperative mood
	Footnotes to tables	**29.5.2**	Numbered if more than one; numbered independently from the footnotes to the text; numbering restarts for each new table	Normally superscript upper case letter followed by a closing bracket, starting with "A)"	May contain provisions

24.2 Title

Notes do not have a title.

24.3 Numbering and subdivision

Within a given clause or subclause, notes should be numbered sequentially. The numbering restarts at each new subdivision. A single note in a subdivision should not be numbered.

Notes to items in a list should also be numbered sequentially, even if different notes refer to different list items.

24.4 Referencing

When notes are referred to, use, for example, the following forms for references:

- "an explanation is provided in **7.1**, Note 2"
- "see **8.6**, Note 3"

24.5 Specific principles and rules

In a specification, notes should not contain requirements (i.e. use of "shall", see Table 3) or any information considered indispensable for the use of the document, for example instructions (imperative mood). They may contain recommendations (i.e. use of "should", see Table 3) and permission (i.e. use of "may", see Table 3).

In a code of practice or a guide, notes should not contain recommendations (i.e. use of "should", see Table 3) or any information considered indispensable for the use of the document, for example instructions (imperative mood). They may contain permission (i.e. use of "may", see Table 3).

Table 4 summarizes how to use notes, footnotes and commentaries within documents.

A note should be preceded by the word “NOTE” in upper case, followed by an em space.

Notes should be relevant to the provisions of the document and should be kept as precise as possible. Longer passages of advice, and peripheral information, should be placed in commentary or an informative annex.

The wording and location of a note should show where it applies. Notes are usually placed after the paragraph to which they refer, but it is also acceptable to place a note at the beginning of a clause or subclause, e.g. to draw attention to legislation that applies to the whole clause. (This does not count as a hanging paragraph; see **22.3.3**.) A note that relates to a specific list item should be indented to align with the text of the list item to which it applies.

24.6 Examples of how to use notes

EXAMPLE 1 (correct examples of the use of a note in a specification)

The organization shall document, monitor and review information about these internal and external issues.

NOTE 1 The organization should identify the links between its fire policy, objectives and strategy and its wider risk management strategy and the organization’s tolerance to risk.

NOTE 2 Issues can include positive and negative factors or conditions.

EXAMPLE 2 (correct examples of the use of a note in a code of practice)

When deciding on the dimensions of protected stairways and corridor zones, provision should be made for adequate refuge space for occupants to await further progressive evacuation in managed buildings.

NOTE 1 This may include the provision of refuges.

NOTE 2 This might have to include space for more than one wheelchair, which is dependent on the building occupancy.

EXAMPLE 3 (incorrect examples of the use of a note)

*NOTE In this context a part **shall** be regarded as a separate document …*	“*shall*” constitutes a requirement
*NOTE Alternatively, **test** at a load of …*	“*test*” constitutes a requirement, expressed here in the form of an instruction using the imperative
[In a code of practice] *NOTE Any protected exit passageway **should** have the same standard of fire resistance as the stairway it serves…*	“*should*” constitutes a recommendation, which in a code of practice is a provision of the document

EXAMPLE 4 (examples of notes to items before, within and following a list)

Berths should be provided with a suitable fendering system to protect berth structures and vessels from damage.

NOTE 1 Historically it has been the practice in some ports not to provide fendering to berths other than simple timber rubbing strips.

The fendering system should be designed taking account of:

a) the range of vessels berthing;

b) the methods used to berth the vessel;

NOTE 2 Where a vessel berthing alongside is manoeuvred by tugs and/or the use of thrusters, it is generally stopped a short distance off and parallel to the berth.

NOTE 3 Tugs, launches and other small vessels tend to approach their berths more directly than large vessels.

c) vessels moored during cargo handling operations;

d) the normal operating conditions of the berth; and

e) the intended service life of the system, making due allowance for degradation and wear and tear during operations.

NOTE 4 The fendering system might need to be designed to work with the mooring system to reduce vessel movements.

24.7 Commentaries

In addition to notes, UK standards also use commentaries. As is the case with notes, commentaries should not contain provisions or any other information considered indispensable for the use of the document. They are a means of giving additional information and advice to the reader in such a way as to distinguish it from the provisions of the document.

As a general rule, notes are used for short pieces of information and advice relating to specific provisions, whereas commentaries are used to give general background information relating to an entire section, clause or subclause.

While there is in principle no limit on the length of a commentary, a very long commentary can interrupt the flow of the normative text, and it might be more appropriate to move the content into an informative annex.

A commentary should be preceded by the words “COMMENTARY ON [ref]” in upper case, followed by a line break. Where the commentary relates to a section, clause, annex, figure or table, the words “SECTION”, “CLAUSE”, etc. in the reference should be in upper case. Where the commentary relates to a subclause, the word “subclause” is not included in the reference.

Commentaries are usually placed at the beginning of a clause or subclause to which they relate (this does not count as a hanging paragraph; see **22.3.3**).

Commentaries that apply to a specific figure or table usually precede that figure or table.

Table 4 summarizes how to use notes, footnotes and commentaries within documents.

24.8 Warnings and cautions

If a document calls for the use of substances and/or procedures that could lead to a risk of injury or death, a general warning should be included in the Foreword. More specific warnings may be given additionally in the main text, located next to the relevant content.

If a document calls for the use of substances and/or procedures that could lead to a risk of damage to a product, process or surroundings, a caution may be given in the main text, located next to the relevant content.

Warnings and cautions have discrete and precise purposes, and should not be used interchangeably.

A warning or caution should be preceded by the word “WARNING” or “CAUTION” as appropriate, set in bold upper case type, and should appear in a box.

A distinction should be made between the warning or caution itself (i.e. a statement of the hazard or risk) and the provisions of the document (i.e. the actions to be taken). Provisions should not be given in warning/caution boxes.

EXAMPLE 1 (general warning)

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

EXAMPLE 2 (specific warning with related provisions in a specification)

WARNING. Cyanide solutions are highly toxic.

Appropriate measures shall be taken to avoid ingestion of cyanide solutions.

NOTE Care should be taken in the disposal of these solutions.

EXAMPLE 3 (specific warning with related provisions in a code of practice)

WARNING. Because of the high vapour pressure of carbon dioxide, it is extremely hazardous to open a carbon dioxide extinguisher, or to actuate a carbon dioxide extinguisher without a hose and horn assembly fitted.

The safety pin and anti-tamper seal should be fitted before removing the hose and horn assembly.

Under no circumstances should an attempt be made to open a carbon dioxide extinguisher.

EXAMPLE 4 (caution)

CAUTION. Reused powder can become lumpy and interrupt the flow of powder when the extinguisher is operated.

25 Examples

25.1 Purpose or rationale

Examples illustrate concepts presented in the document. The document should be usable without the examples.

25.2 Title

Examples do not have a title, but they can, if necessary, be grouped into a clause or subclause entitled “Example” or “Examples”.

25.3 Numbering and subdivision

Within a given clause or subclause, examples should be numbered sequentially. The numbering restarts at each new subdivision. A single example in a subdivision should not be numbered.

25.4 Referencing

When examples are referred to, use for example, the following forms for references:

- "see **6.6.3**, Example 5"
- "Clause **4**, Example 2 lists…"

25.5 Specific principles and rules

Examples should not contain requirements (i.e. use of "shall", see Table 3) or any information considered indispensable for the use of the document, for example instructions (imperative mood). They should also not contain recommendations (i.e. use of "should", see Table 3) or permission (i.e. use of "may", see Table 3). Examples should be written as a statement of fact.

An example can cite text to illustrate a point. If the cited text contains requirements, recommendations or permissions, this is acceptable.

An example should be preceded by the word "EXAMPLE" in upper case, followed by either a line break or an em space.

25.6 Examples of how to use examples

EXAMPLE 1

The generic model can be applicable to other possible manufacturing operations categories or for other operations areas within the enterprise.

EXAMPLE A company can apply the model to receiving operations management and associated services.

EXAMPLE 2

In national implementation of International Standards, the international designation shall be used without change. However, the national standard identification may be inserted between the description block and the International Standard number block.

EXAMPLE If the international designation of a screw is

Slotted pan screw ISO 1580-M5 × 20-4,8

its national designation can be

Slotted pan screw VN 4183-ISO 1580-M5 × 20-4,8

if VN 4183 is the identification of the national standard corresponding to ISO 1580 which has been adopted without change.

26 Footnotes

26.1 Purpose or rationale

Footnotes to the text of a document are used to give additional contextual information to a specific item in the text. The document should be usable without the footnotes.

Rules on footnotes to figures are given in **28.5.5**.

Rules on footnotes to tables are given in **29.5.2**.

Footnotes are used for brief specific pieces of information, e.g. mathematical conversion factors, source information, clarification of marking, information regarding status of standards, disclaimers about use of trademarked items, and URLs for bibliographic references.

26.2 Title

Footnotes do not have a title.

26.3 Numbering and subdivision

Footnotes should be numbered sequentially throughout the document. Normally, footnote references are indicated using Arabic numerals.

Exceptionally, other systems (a, b, c, … ; *, **, ***, … ; †, ‡, …) can be used, for example when there is the possibility of confusing them with superscript numbers. However, this option is not encouraged, particularly if there is a large number of footnotes in the document. The type of footnote used should be consistent throughout a single document.

26.4 Referencing

Footnotes should be referenced in the text.

Use, for example, the following form for references to footnotes:

> Reclamation by hydraulic fill is covered in prEN 16907-6[1)].
>
> ———
>
> [1)] This standard is in preparation at the time of publication of BS 6349-5. It will be published in due course as BS EN 16907-6.

26.5 Specific principles and rules

A footnote can appear anywhere within the text of a document.

Footnotes should not contain requirements (i.e. use of “shall”, see Table 3) or any information considered indispensable for the use of the document, for example instructions (imperative mood). They should also not contain recommendations (i.e. use of “should”, see Table 3) or permission (i.e. use of “may”, see Table 3). Footnotes should be written as a statement of fact.

Footnotes to the text should be placed at the foot of the relevant page and be separated from the text by a short thin horizontal line on the left of the page.

If a footnote applies to an entire sentence, then the footnote reference should be positioned after the punctuation; if the footnote is to a publication, single word, etc., then the footnote reference should be positioned next to that item.

Publications cited in footnotes should be included in the Bibliography (see Clause **21**) and given a reference number.

26.6 Examples of how to use footnotes

> EXAMPLE 1 (footnote relates to single word)
>
> **C.1.1 Introduction**
>
> ...multiplex real-time PCR method based on TaqMan®[7)].
>
> ———
>
> [7)] TaqMan® is a trademark of Roche Molecular Systems. This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

> EXAMPLE 2 (footnote relates to entire sentence)
>
> The population of the United Kingdom, in common with most of mainland Europe, is ageing and its numbers increasing.[2)]
>
> ———
>
> [2)] Data taken from *Housing statistics in the European Union* [5].

27 Mathematical formulae

27.1 Purpose or rationale

A mathematical formula uses symbols to express the relationship between quantities.

NOTE Notations such as

$\frac{v}{\mathrm{km/h}}$, $\frac{l}{\mathrm{m}}$ *and* $\frac{t}{s}$ *or V/(km/h), l/m, and t/s*

for numerical values are not mathematical formulae.

27.2 Title

Mathematical formulae do not have a title.

27.3 Numbering and subdivision

Mathematical formulae can be numbered in a document, for example for cross-referencing purposes. Arabic numbers in parentheses should be used, starting with 1.

EXAMPLE 1

$x^2 + y^2 < z^2$ (1)

By default, the numbering should be continuous and independent of the numbering of clauses, tables and figures. However, mathematical formulae may be numbered with a prefix and a number, where the prefix denotes the clause number, and the second number denotes the sequence of the formulae in the clause. The numbering system chosen should be consistent within any given series. Subdivision of mathematical formulae [e.g. (2a), (2b), …] is not permitted.

When mathematical formulae in annexes are numbered, the numbering restarts and is preceded by the annex letter.

EXAMPLE 2

$x^2 + y^2 < z^2$ (A.1)

27.4 Referencing

If a mathematical formula is numbered, it should be referred to in the text, using roman type, and its purpose should be made clear by its context, for example, with an introductory proposition.

Use, for example, the following forms for references to mathematical formulae:

- "see **10.1**, Formula (3)"
- "see **A.2**, Formula (A.5)"

27.5 Specific principles and rules

27.5.1 General principles

Mathematical formulae should be expressed in mathematically correct form.

It is preferable to use mathematical formulae with quantities than mathematical formulae with numerical values.

EXAMPLE 1

$$V = \frac{l}{t}$$

where:

- v is the speed of a point in uniform motion;
- l is the distance travelled; and
- t is the duration.

If a mathematical formula between numerical values is used, the style shown in Example 2 should be followed, with explicit reference to the measurement units.

EXAMPLE 2

$$V = 3.6 \times \frac{l}{t}$$

where:

- V is the numerical value of speed, expressed in kilometres per hour (km/h), of a point in uniform motion;
- l is the numerical value of distance travelled, expressed in metres (m); and
- t is the numerical value of duration, expressed in seconds (s).

Variables should be represented by italicized letter symbols. Variables should be single-letter symbols except for exceptional cases such as characteristic numbers, which may be multi-letter symbols. Constants should be represented by upright letter symbols, and should be single-letter symbols unless otherwise established by convention.

EXAMPLE 3

In $F = ma$, mass m may vary.

In $F = \mathrm{m}a$, mass m is a constant.

The meanings of the symbols should be explained in connection with the mathematical formulae, unless they appear in a symbols and abbreviated terms clause.

The same symbol should not be used within a document or series both for a quantity and for its corresponding numerical value.

Descriptive terms or names of quantities should not be arranged in the form of a mathematical formula. Names of quantities or multi-letter abbreviated terms, for example presented in italics or with subscripts, should not be used in the place of symbols.

EXAMPLE 4

Correct:

$$t_i = \sqrt{\frac{p_j \ \mathrm{bl}\acute{a}}{p_j \ \mathrm{ol}\acute{a}}}$$

where:

- t_i is the statistical value for the system i;
- $S_{ME,i}$ is the residual mean square for the system i; and
- $S_{MR,i}$ is the mean square due to regression for the system i.

Incorrect:

$$t_i = \sqrt{\frac{j \ pb_{\acute{a}}}{j \ po_{\acute{a}}}}$$

where:

- t_i is the statistical value for the system i;
- MSE_i is the residual mean square for the system i; and
- MSR_i is the mean square due to regression for the system i.

EXAMPLE 5

Correct: $\rho = \frac{\tilde{a}}{\hat{\imath}}$

Incorrect: $density = \frac{mass}{volume}$

EXAMPLE 6

Correct:

$\dim(E) = \dim(F) \cdot \dim(l)$

where:

E is energy;

F is force; and

L is length.

Incorrect:

$\dim(\text{energy}) = \dim(\text{force}) \cdot \dim(\text{length})$!

or:

$\dim(energy) = \dim(force) \cdot \dim(length)$

The same symbol should not be used to represent different quantities within the same document. Subscripts can be useful to distinguish symbols for related concepts.

Unit symbols and percentage symbols should not be used within mathematical formulae.

EXAMPLE 7

Correct:

Calculate the maximum target binder content, $T_{max,b}$ as a percentage (%), from the equation:

$T_{max,b} = M_b - 0.3$

Incorrect:

Calculate the maximum target binder content, $T_{max,b}$, from the equation:

$T_{max,b} = (M_b - 0.3)\%$

There are also mathematically defined constants that are represented by an upright letter, i.e. π (ratio of a circle's circumference to its diameter), e (root of natural logarithms) and i or j (square root of −1).

Occasionally, if a multi-letter symbol is well established in a particular context, it might not be desirable to replace it with a single-letter symbol. In this case, it should be upright, to prevent it from being mistaken for two or more single-letter symbols multiplied together.

A space should not be inserted between symbols that together represent a product of the individual symbols. A space should be used on each side of a mathematical sign, except for ±, which should have a space on the left-hand side only where it is used to indicate a tolerance (e.g. 3 ±0.25).

Mathematical formulae between quantities are preferred to mathematical formulae between numerical values (because mathematical formulae between quantities are independent of the choice of SI units whereas mathematical formulae between numerical values are sometimes not). A judgement should be made as to whether numerical values are better suited to the industry in question.

Further examples are presented in Annex B.

27.5.2 Subscripts and superscripts

As far as possible, symbols having more than one level of subscript or superscript (see Example 1) should be avoided, as should any symbols and mathematical formulae that would involve printing more than two lines of type (see **27.5.3**). Generally the subscripts or superscripts should be placed on the same line, separated by a comma if necessary for clarity.

EXAMPLE 1

$D_{1,\,max}$ is preferable to $D_{1_{max}}$.

$x_{y,(n+1)}$ is preferable to $x_{y_{n+1}}$.

In an expression in which a superscript appears above a subscript (as a power to which the expression is being raised), the superscript is placed slightly to the right of the subscript, rather than immediately above it.

EXAMPLE 2

$d_3{}^2$ is preferable to d_3^2.

This does not apply to prime symbols, which are always closed up to the symbol they relate to, e.g. d_3' is correct.

For fractional indices, the solidus should be used except for simple numerical fractions, where the upright form is generally clearer. Superscripts, especially outside brackets, should be sized and located such that it is clear what they relate to.

NOTE This can be managed more easily using MathType.

EXAMPLE 3

Preferred forms of expression:

$x^{a/b}$

$\left(\frac{a-b+c}{6}\right)^{1/4}$

In exponential functions, particularly if the exponent is lengthy or complex, the abbreviation “exp” followed by the exponent on the same line may be used instead of “e” followed by the exponent as a superscript.

EXAMPLE 4

Acceptable forms of expression:

$\exp(ax^2 + bxy + cy^2)$

$e^{ax^2 + bxy + cy^2}$

Subscripts to variables should always be reasonably short. Symbols such as $\rho_{effective}$ should be edited to ρ_{eff} or ρ_e.

27.5.3 Solidus

In running text, a/b is preferable to $\frac{a}{b}$.

The solidus (/) should be large enough that it can be instantly recognized. A solidus should not be used if there is any possibility of ambiguity. A double solidus should not be used at all, e.g. a/b/c should be expressed as a/bc or ac/b, whichever is intended.

EXAMPLE 1

The expression $\frac{x}{y} + z$ can be expressed as (x/y) + z.

An ambiguous form would be x/y + z, which could be read as $\frac{x}{y+z}$.

EXAMPLE 2

In a displayed mathematical formula, use

$$\frac{\sin\left[(N+1)\varphi/2\right]\sin(N\varphi/2)}{\sin(\varphi/2)}$$

rather than

$$\frac{\sin\left[\frac{(N+1)}{2}\varphi\right]\sin\left(\frac{N}{2}\varphi\right)}{\sin\frac{\varphi}{2}}$$

27.5.4 Special characters and operators

The functions (operators) ln and $\log_e$ mean the same thing. Either may be used, but only one should be used in any standard. The functions log, lg and $\log_{10}$ generally mean the same thing; $\log_{10}$ should be used.

Geometric functions include sin, cos, tan, sinh, cosh, tanh, arcsin, arcos, and arctan.

Δ is often used to mean “the difference between”, δ can be used for “a small amount of” and d is used in derivatives and in integrals to mean “with respect to”. In such cases, these characters represent operators and so are upright. Δ, δ and d can also be italicized to express different meanings, in which case the meanings should be clearly defined.

NOTE The character for partial differentiation is ∂ and should not be confused with the Greek character δ.

27.5.5 Brackets

NOTE 1 In this context the term “bracket” includes parentheses ( ), brackets [ ] and braces { }. Nested brackets within normal text follow the same order.

When nested brackets are required in equations and formulae of single-line depth, the normal order of use is {[( )]}, beginning with ( ). The depth of a pair of brackets should be great enough to enclose the term that occupies the greatest vertical space. Pairs of brackets that enclose others should be at least equal in depth to the brackets they enclose. The outermost pair should therefore be at least as large as, if not larger than, any of the pairs within. Brackets of similar depth should be of similar weight.

NOTE 2 This can be managed more easily using MathType.

EXAMPLE

Preferred: $\left(a+b\right)$

$$\left[a+\left(\frac{b}{c}\right)\right]$$

$$\left\{\left[a+\left(\frac{b}{c}\right)\right]\times\left[d+\left(\frac{e}{f}\right)\right]\right\}$$

Accepted: $(a + b)$

$[a + (b/c)]$

$\{[a + (b/c)] \times [d + (e/f)]\}$

Incorrect: $(a + \frac{b}{c})$

27.5.6 Vinculum

The vinculum (bar) should be used when expressing a root value.

EXAMPLE

$\sqrt{x^2 + y^2 + z^2}$

$\sqrt{2x}$

$\sqrt{2}$

27.5.7 Integral and summation signs

The limits associated with an integral sign and any values of the summation variable associated with a summation sign should be printed in small type above and below the sign.

EXAMPLE

$\int_{\theta_m}^{\theta_0}$

$\sum_{i=1}^{n-1}$

28 Figures

28.1 Purpose or rationale

Figures are a graphical means of representation used when they are the most efficient means of presenting information in an easily comprehensible form.

Figures should be developed to support the text, not the other way round.

Photographs and other media may be used only if it is not possible to represent the concept as a line drawing.

BSI should be consulted as early as possible in the development of the project if the use of photographs is contemplated.

If the use of photographs is being contemplated, copyright might have to be obtained and the following potential problems for users should be taken into account:

- for high precision photographs, the need to use high quality paper to enable accurate reproduction;
- the increased computer storage capacity necessary to accommodate photographs; and
- the high degree of resolution required for the electronic reproduction of photographs.

28.2 Title

Every figure should have a concise title.

28.3 Numbering and subdivision

28.3.1 Figure designation

Figures should be designated “Figure” and numbered. By default, figures are numbered with Arabic numerals, beginning with 1, and the numbering should be continuous and independent of the numbering of the clauses and of any tables. A single figure should be designated “Figure 1”.

If a figure appears in an Introduction, it should be numbered as part of the normal sequence.

In annexes, the figure numbering restarts and the number is preceded by the annex letter (e.g. Figure A.1, Figure A.2, ...).

Where practicable, a figure should be confined to a single page. When a figure is continued over several pages, the figure designation should be repeated on each page, followed by the title and by either:

a) "(1 of #)" where # is the total number of pages on which the figure appears; or

b) "(continued)".

EXAMPLE 1

Figure 1 **Title of figure** *(1 of #)*

EXAMPLE 2

Figure 2 **Title of figure** *(continued)*

28.3.2 Subfigures

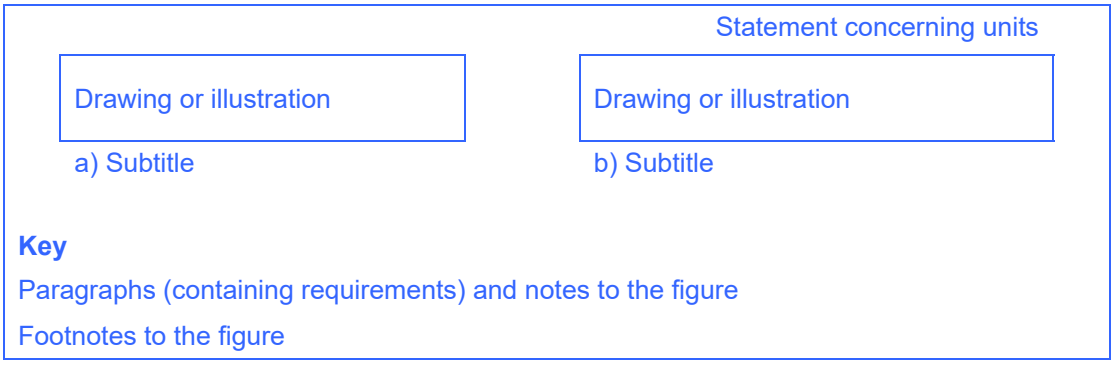
In general, the use of subfigures should be avoided whenever possible since it complicates document layout and management.

Only one level of subdivision of a figure is permitted. Subfigures should be identified by a lower case letter [e.g. Figure 1 may comprise subfigures a), b), c), ...]. Other forms of identification of the subfigures such as 1.1, 1.2, ... 1-1, 1-2, ... and 1A, 1B, … should not be used. Where subfigures are used, they should each be given an individual subtitle as well as a letter.

Separate keys, notes and footnotes for subfigures are not permitted. If each subfigure requires its own key, then individual figures should be used instead.

EXAMPLE

Figure 1 **Figure title**



28.4 Referencing

Each figure should be explicitly referred to within the text, using roman type.

Use, for example, the following forms for references to figures and subfigures:

- "Figure 3 illustrates…"
- "An example is given in Figure 6b)"
- "Details are shown in Figure A.3"

Where a figure is subdivided and a cross-reference is given to an individual subdivision, there should also be a cross-reference either to all the other individual subdivisions, or the overall figure (or both).

Figures in the main text are numbered in the order in which they are cited in the text. They should be located at the point where they are first cited in the text (or as close thereto as is practicable when the document is typeset), below the citation.

Figures in annexes may be mentioned in the main text, but should always be cited in the annex itself, numbered in the order in which they are cited in the annex. They should be located at the point where they are first cited in the annex (or as close thereto as is practicable when the document is typeset), below the citation.

Where a cross-reference is given to two consecutive figures, both should be referred to individually, e.g. “Figure 1 and Figure 2”. Where a range of cross-references is given to three or more figures, the range should be presented in the form “Figure 1 to Figure 3”. The forms “Figures 1 and 2” and “Figures 1 to 3” should not be used.

Where a cross-reference to a subfigure appears in a statement within parentheses, nested brackets should be used, for example:

“[see Figure 7c)]”

28.5 Specific principles and rules

28.5.1 Standards used in the creation of graphical content

The standards listed in Table 5 provide information regarding the creation of graphical content.

Table 5 – Standards used in the creation of graphical content

Subject	Standard	Title
General	BS EN 61082-1	*Preparation of documents used in electrotechnology – Part 1: Rules*
	—	*ITSIG specification for the preparation and exchange of graphics*
Graphical symbols	BS EN IEC 62648	*Graphical symbols for use on equipment – Guidelines for the inclusion of graphical symbols in IEC publications*
	BS EN 80416-1	*Basic principles for graphical symbols for use on equipment – Part 1: Creation of graphical symbols for registration*
	BS EN ISO 81714-1	*Design of graphical symbols for use in the technical documentation of products – Part 1: Basic rules*
Line types	BS EN ISO 128-20	*Technical drawings – General principles of presentation – Part 20: Basic conventions for lines*
Dimensioning	BS ISO 129 (all parts)	*Technical drawings – Indication of dimensions and tolerances*
Dimensional and geometrical product specifications	BS EN ISO 1101	*Geometrical product specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*
Projection	BS ISO 128-30	*Technical drawings – General principles of presentation – Part 30: Basic conventions for views*
Flowcharts and organigrams	BS 4058 (ISO 5807)	*Specification for data processing flow chart symbols, rules and conventions*

28.5.2 Choice of letter symbols, style of lettering

Letter symbols used in figures to represent general cases of angular or linear quantities should be in accordance with BS EN ISO 80000-3. Subscripts can be used where necessary to distinguish between different applications of a given symbol.

Various lengths, *l*, on a drawing should be written with descriptor indices, e.g. l_1, l_2, l_3, rather than *A*, *B*, *C*, ... or *a*, *b*, *c*, ….

Lettering on technical product documentation should be in accordance with the BS EN ISO 3098 series. Italic letters should be used for symbols for variable quantities.

The vertical (upright) style should be used for all other lettering.

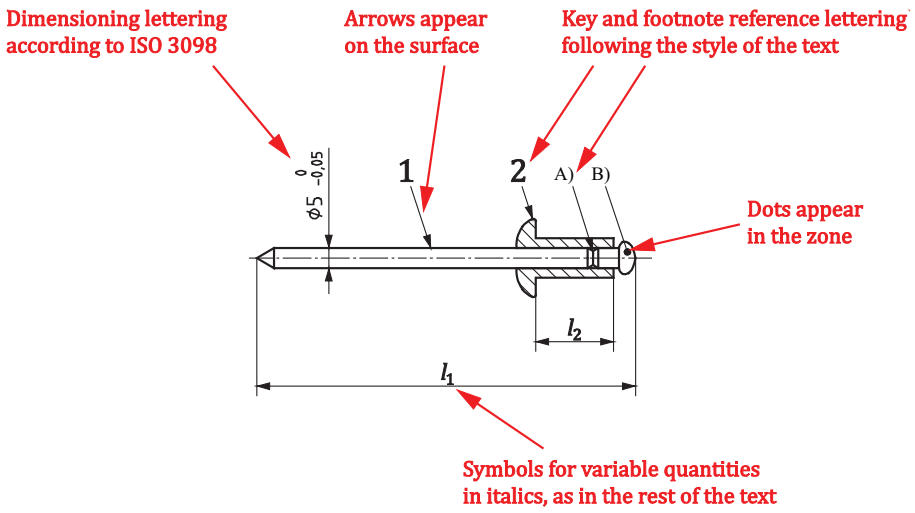
When all units for a quantity are the same, a suitable statement (e.g. “Dimensions in millimetres”) should be placed above the right-hand corner of the figure, within the frame.

An example illustrating the elements of a figure is shown in Figure 4.

Guidance on technical aspects of drawings can be obtained from the BSI Drawing Office.

Figure 4 – Example illustrating the elements of a figure

Dimensions in millimetres



l_1	l_2
50	10,5
70	15
90	19

Key
1 Mandrel shank
2 Blind rivet head

The mandrel shall be designed such that the blind rivet end deforms during installation, and the shank can expand.

NOTE Figure # illustrates a type A rivet head.

A) The break area is milled.
B) Mandrel head to be chrome plated.

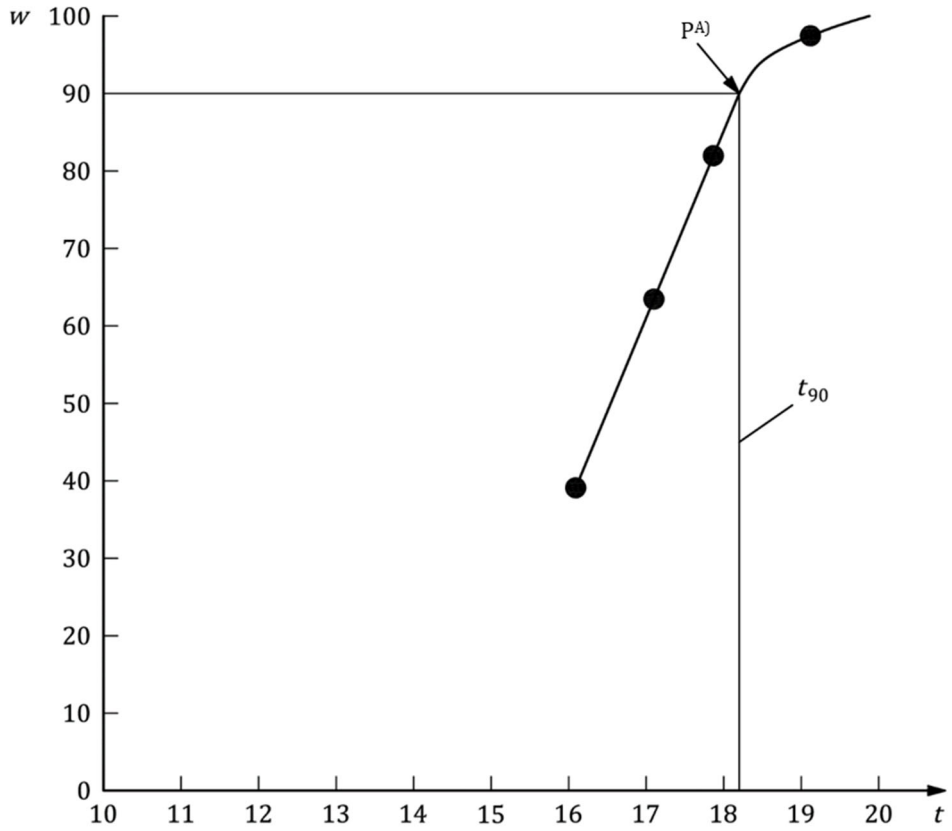
28.5.3 Key and labels to figures

Figures should be language-neutral in order to facilitate translation, using key references or figure footnotes (see Figure 4) instead of textual descriptions (in accordance with BS EN ISO 6433).

Where a figure containing subfigures includes a key, the numerical key references should run throughout the figure, not start again with each subfigure.

In graphs (see Figure 5), labelling of curves, lines and other elements should be replaced by key references. Labelling on the axes should not be replaced by numerical key references, which can be confused with numerical values.

Figure 5 – Example of a graph



Key

w Mass fraction of gelatinized kernels, expressed in per cent
t Cooking time, expressed in minutes
t_{90} Time required to gelatinize 90% of the kernels
P Point of the curve corresponding to a cooking time of t_{90}

NOTE These results are based on a study carried out on three different types of kernel.

[A)] The time t_{90} is estimated to be 18.2 min for this example.

In flowcharts and organigrams, textual descriptions are used within the figure for better readability (see **28.6.4**).

NOTE Notations such as

$\frac{V}{\text{km/h}}$, $\frac{l}{\text{m}}$ *and* $\frac{t}{\text{s}}$, *or V/(km/h), l/m and t/s*

for numerical values are particularly useful on the axes of graphs, replacing the use of the corresponding measurement units in key references.

28.5.4 Notes to figures

Notes to figures are numbered independently from notes to the text (see Clause **24**). They should be located below the drawing and the key, and should precede any figure footnotes.

A single note in a figure should be preceded by “NOTE”, placed at the beginning of the first line of the text of the note (see Figure 4). When several notes occur in the same figure, they should be designated “NOTE 1”, “NOTE 2”, “NOTE 3”, … . The numbering restarts for each new figure.

Notes to figures should not contain provisions or any information considered indispensable for the use of the document. Any provisions relating to the content of a figure should be given in the text, in a footnote to the figure or as a paragraph below the drawing, within the frame. Notes to figures do not need to be referred to.

NOTE It is preferable for provisions of the document to be placed in the main text rather than within a figure.

Table 4 summarizes how to use notes, footnotes and commentaries within documents.

28.5.5 Footnotes to figures

Footnotes to figures are numbered independently from footnotes to the text (see Clause **26**). They should be the final item in the figure, located below the drawing, the key and any paragraphs or notes.

Footnotes to figures should be distinguished by superscript upper case letters, starting with “A)”. The footnotes should be referred to in the figure by inserting the same superscript upper case letter (see Figure 4).

Footnotes to figures should not contain provisions.

Table 4 summarizes how to use notes, footnotes and commentaries within documents.

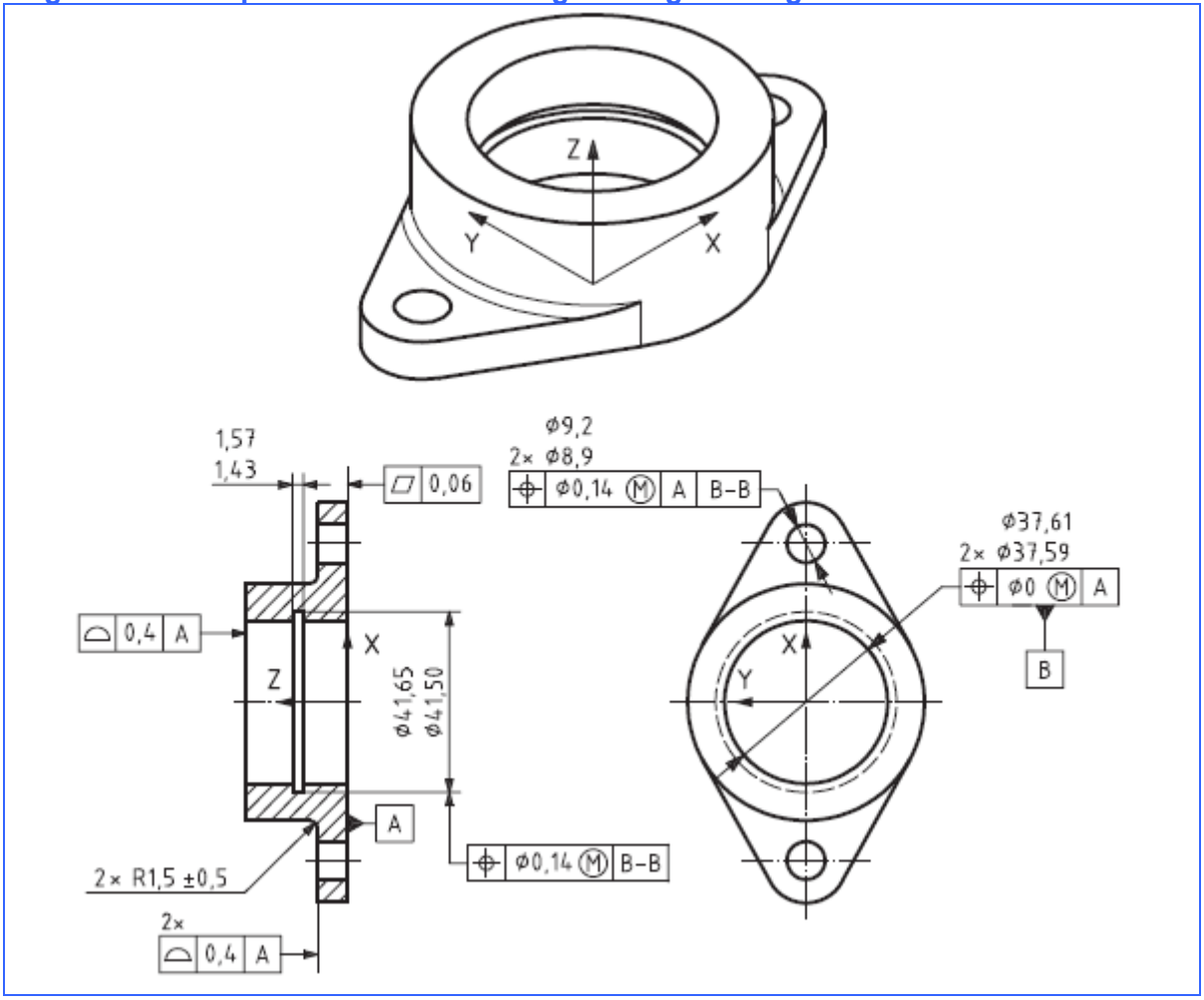
28.6 Types of figure

28.6.1 Mechanical engineering drawings

Mechanical engineering drawings should be prepared in accordance with relevant standards (listed in Table 5). Different views, details and sections of a component or multicomponent object should be presented in conformity with BS EN ISO 128-3. Different views, details and sections of a component or multicomponent object should not be presented as subfigures.

An example of a mechanical engineering drawing is shown in Figure 6.

Figure 6 – Example of a mechanical engineering drawing



28.6.2 Graphical symbols

Graphical symbols for use on equipment should be in accordance with IEC 60417 and ISO 7000. Public information symbols should be in accordance with BS ISO 7001. Safety signs should be in accordance with BS EN ISO 7010.

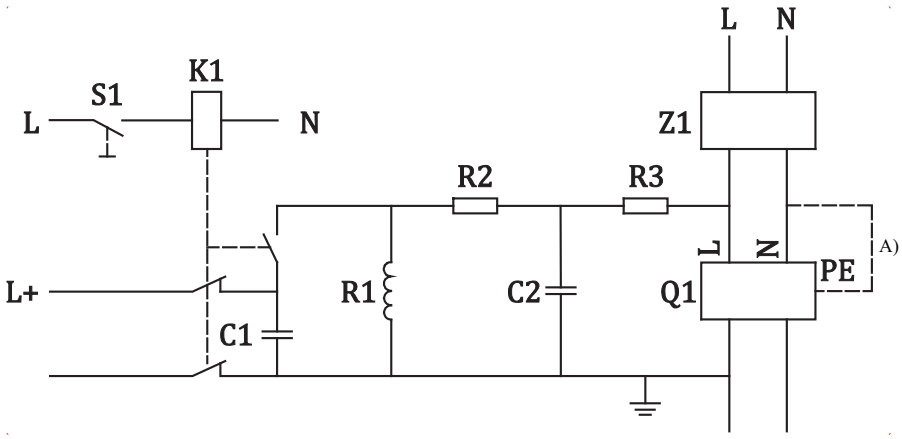
There is a detailed table of graphical symbols in the ISO/IEC Directives, Part 2, together with an example.

28.6.3 Circuit diagrams and connection diagrams

Diagrams, such as circuit diagrams and connection diagrams, should be prepared in accordance with BS EN 61082-1. Graphical symbols used in schematic diagrams should be in accordance with IEC 60617 (for electrotechnical diagrams) and the BS ISO 14617 series (for other diagrams). Reference designations should be in accordance with the BS EN 81346 series. Signal designations should be in accordance with BS EN 61175-1.

An example of a circuit diagram is shown in Figure 7.

Figure 7 – Example of a circuit diagram



Key

Components

C1 Capacitor C = 0.5 µF
C2 Capacitor C = 0.5 nF
K1 Relay
Q1 RCCB under test (with terminals L, N and PE)
R1 Inductor L = 0.5 µH
R2 Resistor R = 2.5 Ω
R3 Resistor R = 25 Ω
S1 Manual control switch
Z1 Filter

Connections and supplies

L, N Supply voltage with neutral
L+ DC supply voltage for the test circuit

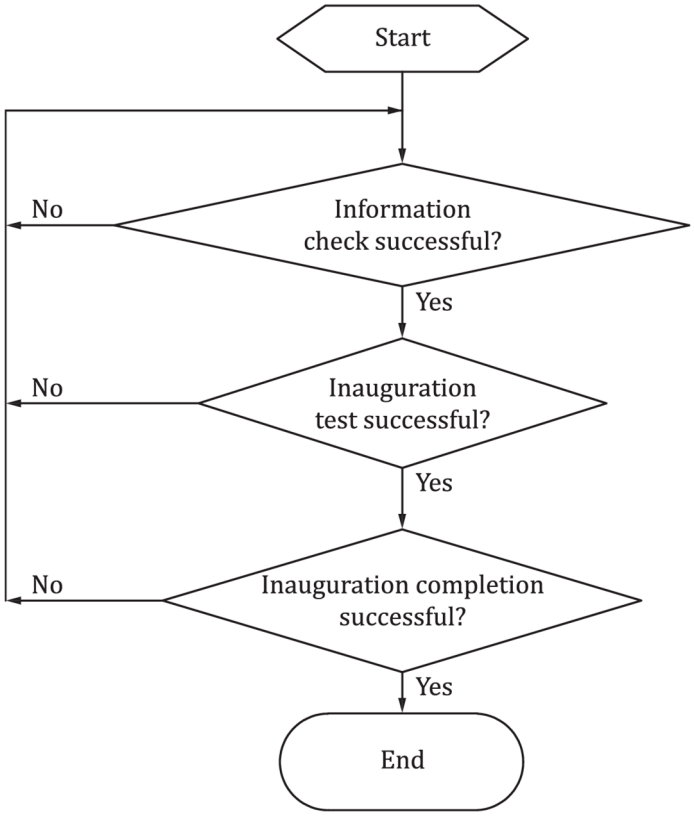
A) Connection to be made if the tested object has a terminal for PE.

28.6.4 Flowcharts

Flowcharts should be prepared in accordance with BS 4058 (ISO 5807).

An example of a flowchart is shown in Figure 8.

Figure 8 – Example of a flowchart



29 Tables

29.1 Purpose or rationale

Tables are used when they are the most efficient means of presenting information in an easily comprehensible form.

Tables may be used, for example:

- to supplement, clarify, summarize or substitute for text; or
- to avoid repetition; or
- to compare differences or similarities.

29.2 Title

Every table should have a concise title.

29.3 Numbering and subdivision

Tables should be designated “Table” and numbered. By default, tables are numbered with Arabic numerals, beginning with 1, and the numbering should be continuous and independent of the numbering of the clauses and of any figures. A single table should be designated “Table 1”.

If a table appears in an Introduction, it should be numbered as part of the normal sequence.

Further subdivision should be avoided, but is permissible if it would be helpful to the reader, e.g. if there is a series of tables in pairs. If a table is subdivided, the number of each part of the table should be followed by an upper case letter, e.g. “Table 1A”, “Table 1B”.
A subdivided table should have a common main element running through its titles, and the layout and column headings should be identical throughout all subdivisions.

A table within a table is not permitted.

It is often better to create several tables rather than trying to consolidate too much information into one table. The simpler the presentation, the better. Complex graphical representations within tables should be avoided.

If a very complex table is necessary, it can be better to include it as a software supplement to the document.

In annexes, the table numbering restarts and the number is preceded by the annex letter (e.g. Table A.1).

When a table is continued over several pages, the table designation should be repeated, followed by the title on each page and by either:

a) "(1 of #)" where # is the total number of pages on which the table appears; or

b) "continued".

EXAMPLE 1

Table 1 **Title of table** *(1 of #)*

EXAMPLE 2

Table 2 **Title of table** *(continued)*

The column headings together with any statement concerning units should be repeated on all pages after the first. If the table contains notes and/or footnotes, these should appear on the last page only, but a single row may be added at the bottom of every page of the table stating that the notes/footnotes can be found at the end.

29.4 Referencing

Each table should be explicitly referred to within the text, using roman type.

Use, for example, the following forms for references to tables:

- "Table 3 lists…"
- "as shown in Table 6B"
- "Details are given in Table B.1"

Where a table is subdivided and a cross-reference is given to an individual subdivision, there should also be a cross-reference either to all the other individual subdivisions, or the overall table (or both).

Tables in the main text are numbered in the order in which they are cited in the text. They should be located at the point where they are first cited in the text (or as close thereto as is practicable when the document is typeset), below the citation.

Tables in annexes may be mentioned in the main text, but should always be cited in the annex itself, numbered in the order in which they are cited in the annex. They should be located at the point where they are first cited in the annex (or as close thereto as is practicable when the document is typeset), below the citation.

Where a cross-reference is given to two consecutive tables, both should be referred to individually, e.g. "Table 1 and Table 2". Where a range of cross-references is given to three or more tables, the range should be presented in the form "Table 1 to Table 3". The forms "Tables 1 and 2" and "Tables 1 to 3" should not be used. Where a range of cross-references is given to all subdivisions of a single table, only the overall table number need be referred to, e.g. "Table 1" instead of "Table 1A to Table 1D".

29.5 Specific principles and rules

29.5.1 Notes to tables

Notes to tables are numbered independently from notes to the text. They should be located within the frame of the relevant table and should precede table footnotes.

A single note in a table should be preceded by "NOTE", placed at the beginning of the first line of the text of the note. When several notes occur in the same table, they should be designated "NOTE 1", "NOTE 2", "NOTE 3", … . The numbering restarts for each new table.

Notes to tables should not contain provisions or any information considered indispensable for the use of the document. Any provisions relating to the content of a table should be given in the text, in a footnote to the table or as a paragraph within the table. Notes to tables do not need to be referred to.

NOTE It is preferable for provisions of the document to be placed in the main text rather than within a table.

Table 4 summarizes how to use notes, footnotes and commentaries within documents.

29.5.2 Footnotes to tables

Footnotes to tables are numbered independently from footnotes to the text. They should be located within the frame of the relevant table, and should appear at the foot of the table.

Footnotes to tables should be distinguished by superscript upper case letters, starting with "[A)]". The footnotes should be referred to in the table by inserting the same superscript upper case letter.

Footnotes to tables may contain provisions.

NOTE It is preferable for provisions of the document to be placed in the main text rather than within a table.

Table 4 summarizes how to use notes, footnotes and commentaries within documents.

29.5.3 Keys to tables

In tables, it is sometimes necessary to abbreviate words or references in order to save space or to improve readability. The meaning of such abbreviated terms should be explained in a key, as shown in Table 6.

Table 6 – Example of a table with a key

Data object name	Common data class	Explanation	T	M/O/C
LNName		The name shall be composed of the class name, the LN-Prefix and LN-Instance-ID according to IEC 61850-7-2:2010, Clause **22**.		
Op	ACT	Level of action reached	T	M
StrVal	ASG	Start level set-point		C
OpDlTmms	ING	Operate delay time [ms]		O

Key

T	Transient data objects
M/O/C	The data object is mandatory (M) or optional (O) or conditional (C)

29.5.4 Headings in tables

When tables display numerical values of quantity values, notations such as

$\frac{V}{\text{km/h}}$, $\frac{l}{\text{m}}$ and $\frac{t}{\text{s}}$, or *V*/(km/h), *l*/m and *t*/s

are very useful in headings of tables, especially when the measurement units are different. This is demonstrated in **29.6**, Example 2.

When the measurement unit is the same, whatever the quantity value, a suitable statement (e.g. “Dimensions in millimetres”) can be placed above the right-hand corner of the table.

29.6 Examples of table layouts

EXAMPLE 1

The layout of the different elements that can appear in a table

Dimensions in millimetres

Type	Length	Inside diameter	Outside diameter
	l_1 A)	d_1	
	l_2	d_2 B), C)	
A paragraph containing a requirement.			
NOTE 1 Table note. *NOTE 2 Table note.*			
A) Table footnote. B) Table footnote. C) Table footnote.			

EXAMPLE 2

When there are several different units:

Type	Linear density	Inside diameter	Outside diameter
	λ_m	d	D
	kg/m	mm	mm

EXAMPLE 3

When all the units are the same:

Dimensions in millimetres

Type	Length	Inside diameter	Outside diameter

EXAMPLE 4

Correct and incorrect table headers. Table cells should not be split diagonally

Correct:

Size	Type		
	A	B	C

Incorrect:

Type / Size	A	B	C

A table cell should never be left blank. If there is no value for a table cell, it should contain either an em dash or the words “Not applicable”. An em dash is the more common form.

Section 5: Policy

30 Patent rights

For patented items, the rules given in BS 0:2021, PAS 0:2022 or BSI Flex 0 v2.0:2022-08, as appropriate, should be followed.

31 Use of trade names and trademarks

A correct designation or description of a product should be given rather than a trade name or trademark.

Proprietary trade names or trademarks for a particular product should as far as possible be avoided, even if they are in common use.

If, exceptionally, trade names or trademarks cannot be avoided, their nature should be indicated, for example by the symbol ® for a registered trademark (see Example 1) and by the symbol ™ for a trademark.

EXAMPLE 1
Instead of “Teflon®”, write “polytetrafluoroethylene (PTFE)”.

If it is known that only one product is currently available that is suitable for the successful application of the document, the trade name or trademark of the product may be given in the text of the document but should be associated with a footnote as shown in Example 2.

EXAMPLE 2
… [trade name or trademark of product] … is the [trade name or trademark] of a product supplied by … [supplier] …. This information is given for the convenience of users of this document and does not constitute an endorsement by BSI of the product named. Equivalent products may be used if they can be shown to lead to the same results.

If it is considered essential to give an example (or examples) of commercially available products suitable for successful application of the document because the product characteristics are difficult to describe in detail, trade names or trademarks may be given in a footnote as shown in Example 3.

EXAMPLE 3
… [trade name(s) or trademark(s) of product(s)] … is (are) an example(s) of a suitable product(s) available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by BSI of this (these) product(s).

If it is considered essential for reasons of public interest or public safety to refer to commercially available products, trade names or trademarks may be provided, with a footnote as shown in Example 4.

EXAMPLE 4
This (these) [trade name(s) or trademark(s)] is (are) provided for reasons of public interest or public safety. This information is given for the convenience of users of this document and does not constitute an endorsement by BSI.

32 Copyright

Copyright in standards is governed by BS 0:2021, **9.5**, PAS 0:2022, **8.5** and BSI Flex 0 v2.0:2022-08, **8.5**.

33 Aspects of conformity assessment

33.1 Documents containing provisions for products, processes, services, persons, systems and bodies

All documents containing provisions for products, processes, services, persons, systems and bodies should be written in accordance with the "neutrality principle", such that conformity can be assessed by a user of the document such as a manufacturer or supplier (first party), an end user or purchaser (second party), or an independent body (third party).

NOTE 1 First-party, second-party and third-party conformity assessment activities are defined in BS EN ISO/IEC 17000.

As a general rule, such documents should not include provisions related to conformity assessment other than provisions which are necessary to provide repeatable and reproducible conformity assessment results (see **5.5**). If independent attestation of conformity to a British Standard is considered to be desirable, an informative statement to this effect may be included in the Foreword and/or at an appropriate point in the text. Where, exceptionally, it is believed that a circumstance has arisen where a document needs to include a requirement or recommendation for third-party conformity assessment, the approval of the Standards Policy and Strategy Committee (SPSC) is required (see BS 0:2021, **4.3.3.2**, PAS 0:2022, **4.4.3.2** and BSI Flex 0 v2.0:2022-08, **4.3.3.2**).

This principle applies equally to first-party and second-party assessment, such that a document should not include provisions relating to the way in which a first party is expected to claim or demonstrate conformity, or the way in which a second party is expected to assess conformity.

Committees wishing to give additional conformity assessment provisions for the product, process, service, persons, systems or bodies may only do so in a separate document or in a separate part of the document (see **6.3**) provided that the separate parts can be applied independently.

With the exception of management systems standards (see Clause **34**), no document containing provisions for products, processes, services, persons, systems and bodies should make conformity dependent on a quality management systems standard (e.g. it should not make normative reference to BS EN ISO 9001).

33.2 Conformity assessment schemes and systems

UK standards may not be explicitly developed in support of an individual conformity assessment scheme (see BS 0:2021, **4.3.3.2**, PAS 0:2022, **4.3.3.2** and BSI Flex 0:2022-08, **4.3.3.2**).

33.3 References to conformity assessment documents

When a committee develops a document relating to conformity assessment systems or schemes, or any other document addressing conformity assessment aspects, the document may make normative reference to the relevant published documents for conformity assessment procedures, including BS EN ISO/IEC 17000 and BS EN ISO/IEC 17025. The committee may include verbatim text from the ISO/IEC documents for conformity assessment procedures but the committee should not delete, change or interpret them.

34 Aspects of quality management systems, reliability and sampling

General aspects are dealt with by ISO/IEC Technical Committees ISO/TC 69 *Applications of statistical methods*, ISO/TC 176 *Quality management and quality assurance* and IEC TC 56 *Dependability*. Documents developed by those technical committees should be consulted for guidance.

35 Management standards (MS) and management systems standards (MSS)

Rules for the drafting of management standards and management systems standards (including sector-specific standards) are given in Annex SL and Annex SP of the ISO Supplement to the ISO/IEC Directives, Part 1.

Annex A (informative)
Checklist for writers and editors of documents

The checklist given in Table A.1 is a tool to help writers and editors of documents.

Table A.1 – Checklist for writers and editors of documents

Task	Assessment	Done ☑	Comments
Structure (Clause **6**, Clause **22**)	Check table of contents: Is the top-level structure logical? Is the subdivision consistent?		
	Hanging paragraphs: Check for and remove any hanging paragraphs.		
Use of plain language (Clause **4**, Clause **5**)	Is the text clear and concise?		
	Are the sentences short? (check punctuation)		
Title (Clause **11**)	Is the title organized going from the more general to the more particular?		
	Does the title unintentionally limit the scope of the document?		
	Is it as clear and concise as possible?		
	Make sure that the title does not contain more than three elements.		
	If there are several parts, are the titles aligned?		
Foreword (Clause **12**)	Is the document a revision or new edition? If so, insert a statement including a list of changes with respect to previous edition.		
	Are there any other organizations involved in the drafting that should be mentioned?		
	Is all the standard wording present, appropriate for the type of standard, and up to date?		
	Is the document an amendment or corrigendum? If so, insert the appropriate tagging wording and any other relevant details.		
	Are sponsor(s), technical author(s) and steering group/advisory group organizations correctly acknowledged?		
Introduction (Clause **13**)	Is it purely informative?		
	Does it describe the content or give information on why the document is necessary?		
Scope (Clause **14**)	Does it describe what the document does?		
	Does it state where it is applicable?		
	Does it only contain statements of fact?		
	Is it consistent with the title?		
	Is there any content in the Scope that would be better placed in the Foreword or an introduction?		
	Make sure that anything explicitly excluded from the Scope is not discussed further within the document.		

Table A.1 – Checklist for writers and editors of documents

Task	Assessment	Done ☑	Comments
Normative references (Clause **15**)	Are all of the references listed in the Normative references clause cited in the text in such a way that some or all of their content constitutes provisions, or limits the application, of the document?		
	Are the references dated or undated?		
	Are the normative references publicly available?		
	Where pure ISO/IEC standards are referred to, is there a BS implementation that can be used instead?		
	Are full bibliographic details given for non-standards publications?		
	Are non-standards publications numbered and listed in the order in which they are cited?		
Terms and definitions (Clause **16**)	Are the terms listed used in the document?		
	Are the definitions correctly drafted?		
	If a list of symbols is included, is it comprehensive?		
	If a list of abbreviated terms is included, is it comprehensive?		
Figures (Clause **28**)	Does each figure have a concise title?		
	Is each figure numbered correctly, in order of citation?		
	Is there a key if necessary?		
	Are all figures cross-referenced in the text?		
	Do all the elements of each figure appear in the correct order?		
Graphical symbols (**28.6.2**)	Are symbols used taken from the ISO and IEC databases? If not, contact IEC TC 3, IEC SC 3C, ISO/TC 10 and ISO/TC 145 in order to register a standardized symbol.		
Tables (Clause **29**)	Does each table have a concise title?		
	Is each table numbered correctly, in order of citation?		
	Are all tables cross-referenced in the text?		
	Do all the elements of each table appear in the correct order?		
	Are table rules used correctly?		
Annexes (Clause **20**)	Is there a reference to each annex in the main part of the text?		
	Is their status (normative or informative) correct? Is this made clear in the main part of the text?		
	Do the annexes appear in the order in which they are cited?		
Bibliography (Clause **21**)	Is it formatted consistently?		
	Are all the entries correct and complete?		
	Are any of them normative references that should be listed in Clause 2?		
	Are any of the listed documents duplicated in Clause 2?		

Table A.1 – Checklist for writers and editors of documents

Task	Assessment	Done ☑	Comments
	Are non-standards publications numbered and listed in the order in which they are cited?		
Drafting of provisions (Clause **4**, Clause **7**)	Make sure that “shall” “should” and “may” are not used in the Foreword, Introduction or Scope.		
	Are “may”, “can” and “might” used correctly?		
	Is “must” used anywhere in the document?		
	Make sure that there are no requirements or recommendations for compliance with national/legal regulations.		
	Make sure there are no provisions in commentary, notes, examples or informative annexes.		
	Are the provisions appropriate for the type of standard?		
	Make sure that there are no provisions for aspects that are not relevant to the scope of the document.		
Potential legal problems (Clause **30**, Clause **31**, Clause **32**)	Copyrights Check for any use of third-party content.		
	Trademarks		
	Patents		
Conformity assessment (Clause **33**)	Are there potential conformity assessment issues?		
Cross-references (Clause **10**)	Are all cross-references correct?		
Common problems (Annex B)	Are symbols for variable quantities correct, consistent and properly formatted in the text and in mathematical formulae?		
	Is a full stop on the line used as the decimal sign?		
Other issues	Are lists correctly numbered and indented?		
	Are notes correctly numbered and indented?		
	Have equations been created using MathType?		
	Are equations internally consistent?		

Annex B (normative)
Quantities and units

Table B.1 lists provisions that are specified elsewhere in the BSI *Rules for the structure and drafting of UK standards*, or in the particular standards dealing with quantities and units.

Table B.1 – Quantities and units

Aspect to be considered	Explanations and examples
Decimal sign	The decimal sign should be a full stop, except in National Annexes to Eurocodes, which should have a decimal comma.
Permitted units	UK standards should, wherever practicable, use only: • SI units, as given in the various parts of the BS ISO 80000 series, the BS EN 80000 series and the BS EN ISO 80000 series; • a few additional units used with the SI, namely minute (min), hour (h), day (d), degree (°), minute (′), second (″), litre (l), tonne (t), electronvolt (eV) and unified atomic mass unit (u), as shown in BS EN ISO 80000-1; • the units neper (Np) and bel (B), which are given in BS EN ISO 80000-1 and BS EN ISO 80000-3, and octave, which is given in BS EN ISO 80000-8; and • the units baud (Bd), bit (bit), octet (o), byte (B), erlang (E), hartley (Hart), natural unit of information (nat) and shannon (Sh), which are given in BS EN 80000-13, and var (var) which is given in BS EN 80000-6, for use in electrical technology and information technology. *NOTE 1 In most cases, for consistency, in International Standards only the symbol "l" is used for litre, although the symbol "L" is also given in BS EN ISO 80000-3.* *NOTE 2 The centimetre is not an SI unit. Metres or millimetres are preferred.* Avoid using multiples and submultiples of a given unit in the same context.
Mixing symbols and names of units	Do not mix symbols and names of units. EXAMPLE 1 Correct: "kilometres per hour" and "km/h" — Incorrect: "km per hour" and "kilometres/hour"
Writing numerical values with unit symbols	Use numerical values written in figures with unit symbols. EXAMPLE 2 Correct: "5 m" — Incorrect: "five m" and "5 metres"
Space between numerical values and unit symbols	There should be a space between the numerical value and the unit symbol except in the case of superscript-type unit symbols used for plane angles. However, the degree should preferably be subdivided decimally. EXAMPLE 3 **5** mm 15 Ω 37 km/h 14 A 115° 27 °C 25 K There should not be a space in front of the percentage sign (%).
Use of +, −, ±, >, <, ≥ and ≤ signs as a monadic operator	A mathematical sign before a number (or quantity), used to indicate "same sign" or "change of sign", is a monadic operator and should not be separated from the number by a space. EXAMPLE 4 A Celsius temperature from −7 °C to +5 °C Tolerance ±5 cm on the length of the square. Height of top occupied storey >18 m and ≤30 m. *NOTE 3 An operator is called "monadic" because it operates only on the entity after it.* *NOTE 4 Do not use a hyphen (-) or en dash (–) in place of a minus sign.*

Table B.1 – Quantities and units

Aspect to be considered	Explanations and examples
Use of +, −, ±, =, >, <, ≥ and ≤ signs as dyadic operators or to express relations	There should be spaces on both sides of signs for dyadic operators such as +, −, ±, × and · (half-high dot), and relations such as =, <, >, ≤, ≥. EXAMPLE 5 **5** + 2 5 − 3 $n \pm 1.6$ $D < 2$ mm *NOTE 5 An operator is called "dyadic" because it operates on both the entities located before and after it.* *NOTE 6 Do not use a hyphen (-) or en dash (–) in place of a minus sign.*
Abbreviated terms for units	Do not use non-standardized abbreviated terms for units. EXAMPLE 6 Correct: "s" Incorrect: "sec" Correct: "min" Incorrect: "mins" Correct: "h" Incorrect: "hrs" Correct: "mm" Incorrect: "mil" Correct: "l" Incorrect: "lit" Correct: "A" Incorrect: "amps" Correct: "r/min" Incorrect: "rpm"
Modification of internationally standardized unit symbols	Internationally standardized unit symbols should not be modified by adding subscripts or other information. EXAMPLE 7 Correct: "U_{max} = 500 V" Incorrect: "U = 500 V_{max}" Correct: "a mass fraction of 5%" Incorrect: "5% (m/m)" Correct: "a volume fraction of 7%" Incorrect: "7% (V/V)" Remember that % = 0.01 and ‰ = 0.001 are "pure" numbers. Do not mix information with unit symbols. EXAMPLE 8 Correct: "the water content is 20 ml/kg" Incorrect: "20 ml H_2O/kg" or "20 ml of water/kg".
Use of language-specific abbreviated terms	Language-specific abbreviated terms should not be used. When commonly used language-specific abbreviated terms such as "ppm", are necessary, their meaning should be explained.
Use of ambiguous terms	Ambiguous terms such as "billion" should not be used.
Writing unit or variable quantity symbols	Unit symbols should always be in upright type. Symbols for variable quantities should always be in italic type. Symbols representing numerical values should be different from symbols representing the corresponding quantities. EXAMPLE 9 V is the symbol for the unit Volt. U is the symbol for the quantity electric tension or voltage.

Table B.1 – Quantities and units

Aspect to be considered	Explanations and examples
Writing subscripts	A subscript that represents a variable quantity is in italic type. EXAMPLE 10 q_V for volumetric flow rate Other subscripts, for example those representing words or fixed numbers, are in upright type. EXAMPLE 11 D_{in} for internal diameter
Writing mathematical formulae	Mathematical formulae involving quantities are preferred to formulae involving numerical values because mathematical formulae between quantities are independent of the choice of measurement units whereas mathematical formulae between numerical values are not.
Use of “weight” and “mass”	The quantity “weight” is a force (gravitational force) and is measured in newtons (N). The quantity “mass” is measured in kilograms (kg).
Use of the word “unit”	Quotient quantities should not contain the word “unit” in the denominator. EXAMPLE 12 Correct: “mass per length” or “lineic mass” — Incorrect: “mass per unit length”
Quantities describing objects	Distinguish between an object and any quantity describing the object. EXAMPLE 13 “surface” and “area” — “body” and “mass” “resistor” and “resistance” — “coil” and “inductance”
Use of measurement units when expressing intervals, ranges, tolerances or mathematical relationships	When expressing intervals, ranges, tolerances or mathematical relationships check that the use of the unit is unambiguous, and do not mix units. EXAMPLE 14 Correct: “10 mm to 12 mm” — Incorrect: “10 to 12 mm” and “10 – 12 mm” Correct: “0 °C to 10 °C” — Incorrect: “0 to 10 °C” and “0 – 10 °C” Correct: “23 °C ±2 °C” and “(23 ±2) °C” — Incorrect: “23 ± 2 °C” Correct: “(60 ±3)%” and “60% ±3%” — Incorrect: “60 ± 3%” Correct: “300 mm to 2 000 mm” and “0.3 m to 2 m” — Incorrect: “300 mm to 2 m” and “0.3 m to 2 000 mm” Correct: “24 mm × 36 mm” and “(24 × 36) mm” — Incorrect: “24 × 36 mm” Correct: $80^{+0.05}_{-0.025}\,\mathrm{mm}$ — Incorrect: $80\,\mathrm{mm}^{+50}_{-25}\,\mu\mathrm{m}$
Addition and subtraction of quantity values	Two or more quantity values cannot be added or subtracted, unless they all belong to a quantity of the same kind (e.g. diameter, circumference and wavelength are quantities of the same kind, called “length”). Quantity values having the same unit can belong to a quantity of a different kind (e.g. both “action” and “angular momentum” have the SI unit J s, but are not of the same kind and thus cannot be added or subtracted).
Using the symbol % (per cent), tolerances	The symbol % (per cent), with the meaning “part per hundred”, is an abbreviation for the number 0.01 and can only be used when stating quantity values which are pure numbers. EXAMPLE 15 Correct: “(230 ±11.5) V” — Incorrect: (230 ±5%) V Tolerances shall not be expressed by using the symbol %, unless for quantity values which are pure numbers. However, a verbal expression like “230 V, with a tolerance of +5%” can be used.

Table B.1 – Quantities and units

Aspect to be considered	Explanations and examples
Symbol for expressing logarithm	Do not write “log” in mathematical formulae because it is necessary to specify the base of the logarithm. Write “lg”, “ln”, “lb” or “$\log_a$” when the base is 10, e, 2 and “a”, respectively.
Mathematical signs and symbols	Use the mathematical signs and symbols recommended in BS EN ISO 80000-2, for example “tan” and not “tg”.
Line breaks in mathematical formulae	Line breaks in mathematical formulae and expressions should be in accordance with BS EN ISO 80000-2. Any line break should be before, and not after, the signs of the dyadic operators =, +, −, ± and ∓, or, if necessary, the signs ×, · or /, because there is a space between the operator and the number. EXAMPLE 16 Correct: $-\frac{\partial W}{\partial x}+\frac{\mathrm{d}}{\mathrm{d}t}\frac{\partial W}{\partial \dot{x}}=$ $Q\left[\left(-\mathbf{grad}\,V-\frac{\partial A}{\partial t}\right)_x+\left(v\times\mathbf{rot}\,A\right)_x\right]$ Incorrect: $-\frac{\partial W}{\partial x}+\frac{\mathrm{d}}{\mathrm{d}t}\frac{\partial W}{\partial \dot{x}}$ $=Q\left[\left(-\mathbf{grad}\,V-\frac{\partial A}{\partial t}\right)_x+\left(v\times\mathbf{rot}\,A\right)_x\right]$ Correct: **23** °C ± 2 °C Incorrect: **23** °C ± 2 °C Correct: **24** mm × 36 mm Incorrect: **24** mm × 36 mm

Further examples of the presentation of mathematical formulae are given below:

EXAMPLE 1

$$\frac{x(t_1)}{x(t_1+T/2)}=\frac{\mathrm{e}^{-\delta t_1}\cos(\omega t_1+\alpha)}{\mathrm{e}^{-\delta(t_1+T/2)}\cos(\omega t_1+\alpha+\pi)}=-\mathrm{e}^{\delta T/2}\approx -1.392\,15$$

where:

- x is the x-coordinate;
- t_1 is the time at the first turning point;
- T is the period;
- ω is the angular frequency;
- α is the initial phase;
- δ is the damping coefficient; and
- π is the number 3.141 592 6… .

EXAMPLE 2

To express a mass fraction the following method of expression is sufficient:

$$w = \frac{m_D}{m_S} \qquad v = \frac{l}{t}$$

but note that expressions such as “the percentage by mass” should be avoided.

The following table gives some of the more common abbreviations for units of measurement that are likely to be used in UK standards.

Unit	Quantity=		Unit	Quantity
A (ampere, amp)	electric current=		m (metre)	length
Bq (becquerel)	radioactivity=		min (minute)	time
C (coulomb)	electric charge=		mol (mole)	amount of substance
°C (degrees Celsius)	temperature=		month	time
cd (candela)	luminous intensity=		N (newton)	force
eV (electron volt)	electric potential		Ω (ohm)	electrical resistance
F (farad)	capacitance=		Pa (pascal)	pressure
g (gram)	mass=		rad (radian)	plane angle
h (hour)	time=		s (second)	time
H (henry)	inductance=		S (siemens)	electrical conductance
Hz (hertz)	frequency=		Sv (sievert)	dose equivalent
J (joule)	joule=		T (tesla)	magnetic flux
K (kelvin)	temperature=		V (volt)	electric potential
l (litre)	volume=		W (watt)	power
lm (lumen)	luminous flux=		year	time
lx (lux)	illuminance=	=		

The following table gives common prefixes for units used in UK standards.

Symbol	Factor	Name
P	10^{15}	peta
T	10^{12}	tera
G	10^{9}	giga
M	10^{6}	mega
k	10^{3}	kilo
h	10^{2}	hecto
da	10	deca
D	10^{-1}	deci
c	10^{-2}	centi
m	10^{-3}	milli
μ	10^{-6}	micro
n	10^{-9}	nano
p	10^{-12}	pico
f	10^{-15}	femto

Annex C (normative)
Designation of internationally standardized items

NOTE Designations are distinct from grades, for which recommendations are given in ***G.1.2****.*

The designation of international standardized items should conform to ISO/IEC Directives, Part 2:2021, Annex C. The requirements of the Directives include a format for designations comprising a “description block” and “identity block” of characters, e.g. “Thermometer ISO 656-EC-0,2-58-82”.

Designations, and similarly classifications and classes, have not been as sharply prescribed in British Standards of UK origin. Items may be designated following the ISO schema, e.g. “Tab washer BS SP45-J”, so that all essential information about the item is included in the designation and designations have some consistency of form. However, the designation may include less information where convention has been different and/or where there is less need to be comprehensive, e.g. “SP45J”.

Designations should also conform to the ISO requirements for use of characters. That is, characters should be limited to the Latin alphabet, with no distinction between upper and lower case, Arabic numerals, and the characters hyphen (-), plus (+), solidus (/), comma (,) and multiplication sign (×).

The standard identifier should be of the format “BS EN ISO NNNN:YYYY+AX” within the designation, where “NNNN” is the standard number, “YYYY” is the year of publication (if reference to a particular edition is needed) and X is the number of the amendment (if needed).

It is not advisable to include spaces within the “identity block”.

Annex D (informative)
Reference documents and sources for drafting

A non-exhaustive list of the most generally applicable basic reference works is given in the ISO/IEC Directives, Part 2:2021.

In the BSI *Rules for the structure and drafting of UK standards*, references given in the text are listed in the Bibliography.

NOTE This does not include references that are given in examples for purely illustrative purposes.

Annex E (normative)
Updating standards

COMMENTARY ON ANNEX E

*The different types of updates, and their defining characteristics, are set out in BS 0:2021, **6.2.2** and PAS 0:2022, **6.4.2**. This annex gives some additional information to assist in their development.*

Most of types of updates do not apply to BSI Flex standards, which are developed iteratively. BSI Flex standards can have corrigenda.

E.1 Full revisions

The editing of a full revision should be approached in the same way as for a new standard, with the drafting rules applied in full to the entire content, including in text where no technical changes have been made.

It should not be assumed that wording will be acceptable simply because it was in the previous edition, and precedent alone is not sufficient justification for retaining content that no longer meets the drafting rules.

E.2 Amendments

An amendment is produced when technical changes need to be made only to specific clauses or annexes.

The editing of an amendment should generally be confined to the new or amended text that forms the amendment in question. It is permissible to correct minor editorial errors (errors in punctuation, spelling, etc.), but the document as a whole should not be re-edited.

Amendments should be produced in accordance with the relevant National Content work instructions.

E.3 New editions

A new edition might be produced if, for example:

a) the committee does not have sufficient resources to commit to the amount of work that would be needed to undertake a full revision; or

b) an amendment is proposed to a document that has had two amendments already, and a full revision is not considered practicable.

The editing of a new edition should generally be confined to new or amended text. It is permissible to correct minor editorial errors (errors in punctuation, spelling, etc.), but the document as a whole should not be re-edited.

New editions should be produced in accordance with the relevant National Content work instructions.

E.4 Corrigenda

A corrigendum is produced when a specific technical error or ambiguity needs to be corrected.

The editing of a corrigendum should generally be confined to the new or amended text that forms the corrigendum in question. It is permissible to correct minor editorial errors (errors in punctuation, spelling, etc.), but the document as a whole should not be re-edited.

Corrigenda should be produced in accordance with the relevant National Content work instructions.

Annex F (normative)
Identifiers

NOTE If a need is perceived for any exception to the conventions discussed in this annex, it should be discussed at the earliest stage with BSI. This annex does not cover identifiers used for adoptions or implementations of European and international standards.

F.1 General series of British Standards of UK origin

For British Standards in the general series, the identifier starts with “BS”.

The number of the document is then given, after a space. If a document is divided into parts, the part number follows the main number and is separated from it by a hyphen.

Arabic numerals are used throughout in the numbering of all the elements constituting the publication number (see **6.2** and **6.3**). Letters should be not used, except in the case of an auxiliary publication. The numbering of parts is usually sequential.

EXAMPLE
Single standard: BS 6671
Part 1 of a standard divided into parts: BS 6672-1

Notes on earlier practices

Prior to the 1997 revision of BS 0-3, a part of a standard was identified using “Part”, e.g. “BS 436 Part 4”.

Standards previously issued as separately published sections or subsections derived their number from the part from which they were developed, e.g. “BS 6789-3.1” for part 3, section 3.1, or “BS 6789-3.3.1” for part 3, section 3.3, subsection 3.3.1. Some standards are maintained in separately published sections for historical reasons.

New British Standard codes of practice are given a BS number from the general series. Older codes of practice were formerly numbered in a separate CP series. When revised, these codes receive a new number in the BS general series.

Some series of standards begin with part 0. Revisions of these standards may keep the existing numbering.

F.2 Auxiliary publications

For auxiliary publications, such as reference cards, colour charts, maps or test sheets, the identifier carries the number of the main standard with a suffix letter.

EXAMPLE
Main standard: BS 5261
Auxiliary publication: BS 5261C

F.3 Automobile series

For British Standards in the automobile series, the identifier starts with “BS AU”.

Each time an individual publication is revised or amended, the relevant element of the identifier is followed by a lower case letter, starting with the letter “a” for the first revised or amended edition. This addition of a suffix letter is independent of the change in publication date, which occurs each time the publication is revised; the suffix letter continues to change with each revision and amendment.

EXAMPLE
BS AU 7:1982 (original edition)
BS AU 7a:1983 (first revised or amended edition)
BS AU 7b:1984 (second revised or amended edition)

In all other respects, automobile series standards are identified in the same way as general series standards.

F.4 Aerospace series

British Standards in the aerospace series are identified in the same way as general series standards (see **F.1**).

Notes on earlier practices

Prior to 2022, the identifier for British Standards in the aerospace series started with the following elements:

a) the designation "BS";

b) an Arabic numeral indicating the edition of the document, starting with "2" when the second edition is published (for the first edition, the numeral is omitted);

c) immediately after the numeral, without a space, one or two capital letters to indicate the subject area; and

d) the main publication number, after a space.

EXAMPLE *BS 5G 178-1:1993*

In all other respects, aerospace series standards were identified in the same way as general series standards.

F.5 Marine series

For British Standards in the marine series, the identifier starts with "BS MA".

EXAMPLE BS MA 104-1

In all other respects, marine series standards are identified in the same way as general series standards (see **F.1**).

F.6 PAS standards

For PAS standards, the identifier starts with "PAS", with the publication number given in Arabic numerals.

EXAMPLE PAS 8671

F.7 BSI Flex standards

For BSI Flex standards, the identifier starts with "BSI Flex", with the publication number given in Arabic numerals, and incorporates a version number, year and month.

EXAMPLE BSI Flex 5555 v1.0 2022-03 BSI Flex 5555 v2.0 2022-08

F.8 Published Documents

For Published Documents, the identifier starts with "PD", with the publication number given in Arabic numerals.

EXAMPLE PD 7974-3

F.9 National Annexes to Eurocodes

For National Annexes to Eurocodes, the identifier takes the form
“NA to BS EN 199X-X:20XX”, where BS EN 199X-X:20XX is the identifier of the Eurocode.

The year is the year of publication of the Eurocode and not the year of publication of the NA.

EXAMPLE 1
NA to BS EN 1991-1-2:2002

When a Eurocode is amended, the identifier of the corresponding NA incorporates the amendment number and date of both the NA itself and the Eurocode.

EXAMPLE 2
NA:2016+A1:2022 to BS EN 1993-2:2015+A1:2021

F.10 Non-contradictory complementary information to Eurocodes

For non-contradictory complementary information (NCCI) to Eurocodes, the identifier starts with “PD”, followed by a four-digit number, followed by a suffix matching that of the particular Eurocode.

EXAMPLE
NCCI for Eurocode BS EN 1991-1-2 would have the identifier PD 6688-1-2

Annex G (normative)
Drafting of the different document types

COMMENTARY ON ANNEX G

*The most common types of UK standards are BS, PAS and BSI Flex. These can be any one of the document types defined in **3.1** and described in **G.1** to **G.6**.*

BSI also produces Published Documents (PDs) and National Annexes to Eurocodes.

Up until 2011, PDs were used to publish a variety of supplementary information when it was not practicable to publish a British Standard. They are no longer considered a preferred option for publication, and their use is now largely restricted to publication of NCCI to Eurocodes.

*Some basic rules for National Annexes and NCCI to Eurocodes are set out in **G.7**, with additional guidance given in the relevant National Content work instructions.*

Another type of UK national document, Draft for Development (DD), was produced up until 2011, but BSI no longer publishes these. A DD was produced when there were uncertainties which prevented the immediate preparation of a British Standard. A DD was of a provisional nature and was published so that information and practical experience of its application could be obtained.

G.1 Specifications

G.1.1 Drafting

The provisions (normative elements) of a specification are expressed in the form of requirements, using the auxiliary “shall” (see Clause **7**).

Recommendations, guidance and statements in a specification are all deemed to be informative, and should be clearly distinguished from the requirements by placing them in notes or commentary (see Clause **24**) or informative annexes (see Clause **20**). Informative text should be drafted in the form of recommendations, using the auxiliary “should”, or statements of fact. The word “shall” is not used in informative text.

NOTE Old-style “practice specifications”, with “Requirements” and “Commentary and recommendations” sections, are no longer used. Any specification can be drafted on the practice specification model (i.e. can contain guidance, explanation and application advice integrated within, but clearly separated from, the requirements of the document); but the layout and presentation should conform to current practice, i.e. with requirements presented as main text, and informative material presented as described above.

Normative material (requirements) should be placed only in the main text or normative annexes; it should not be placed in notes, commentary or informative annexes.

Requirements should be expressed using wording such as: “When tested as described in Annex A, the product shall …”, implying in this case that if the test were performed, the product would have to pass in order to establish its conformity.

For most product specifications, it is preferable that requirements be written in terms of the product and not the manufacturer, e.g. “the product shall be provided with”, not “the manufacturer shall provide”.

An annex (or separate standard) that gives a test method may include a clause on interpretation of results, provided that the requirements establish how a product is deemed to pass or fail the test.

To avoid any risk of ambiguity, great care needs to be taken when drafting any performance criterion that might be thought to depend on subjective qualitative judgement. For example, wording such as “After tests a, b, c, the item shall show no signs of deformation when examined visually” should be avoided.

G.1.2 Grades and options

If a specification gives several grades of product, or ranges of values and multi-choice characteristics, from which the purchaser selects when ordering, the practicability of arranging the requirements into a range of suitably coded types or grades should be determined at the earliest stage and appropriate wording included in the Scope clause.

*NOTE 1 "Grade" is defined in BS EN ISO 9000:2015, Clause **3** as an indication of the degree of refinement of a material or product. It is distinct from "quality level", which indicates the extent of departure from the ideal.*

NOTE 2 Where "grade" is denoted numerically, the highest grade is usually designated as 1, with the lower grades extending to 2, 3, 4. Where "grade" is denoted alphabetically it is recommended that the highest grade is designated as A with the lower grades extending to B, C, D. Where "grade" is denoted by a symbol, e.g. a star, the lowest grade usually has the least number of symbols.

If a UK standard specifies a set of basic requirements with optional extras, the requirements for those extras should be specified in clauses introduced by words such as "If provided …" or "If fitted …".

There are no "optional requirements" in UK standards. Requirements can be conditional on an option being selected, but they cannot themselves be optional; if the option is selected then the requirement is mandatory.

If manufacturers will not necessarily produce all the grades or options specified in the document, any marking clause should emphasize the need for claims of conformity to be made only for the relevant grades or options.

G.1.3 Specifications providing for documented and agreed requirements

This type of specification is one in which certain characteristics are fixed and others depend upon the context of its application. Examples are specifications for operations such as welding, erection of structures or installations, and for certain materials, processes and individually designed and manufactured products. It should be assumed that the purchaser will have the necessary technical knowledge to agree precise requirements with the supplier.

If a specification depends upon the definition of particular characteristics or parameters by the purchaser or by agreement between the contracting parties, it should provide for the documentation of these requirements in such a way that conformity to them can be verified as objectively as conformity to any other requirement.

The first clause of the requirements, i.e. the clause that follows the clauses for scope, references, definitions, symbols, etc., should be entitled "Information and requirements to be agreed and documented", and should contain subclauses detailing:

a) all the items of information to be supplied by the purchaser; and

b) all the requirements that are specified throughout the document as being subject to such agreement.

Each of the items for agreement should conclude with a cross-reference to the clause or subclause that specifies details of what has to be agreed.

The main text should comprise one of the following:

1) definitive requirements; or

2) requirements for characteristics to be agreed between the contracting parties; or

3) some of 1) and some of 2). For clarity, these clauses should distinguish definitive requirements from those that rely on supplementary documentation by putting them into separate subclauses or series of subclauses within the clause.

Requirements specified as being subject to such agreement should not undermine other requirements that are explicitly specified. For example, it is not acceptable to specify "The materials shall be a, b or c" and then to state "The use of other materials shall be by agreement …". In such a situation, either the use of any material would have to be the subject of agreement, possibly with supplementary guidance being given in an annex to facilitate the selection of an agreed material, or the default should be specified, with the option to agree something different, using the phrase "Unless otherwise agreed, …". For example, "Unless otherwise agreed between the purchaser and the supplier, the widgets shall be made of copper conforming to BS 2345".

G.1.4 Specifications for materials

Specifications for materials, whether natural or synthetic, should be drafted in the same way as product specifications with, where necessary, emphasis on defining limits for individual properties and on sampling and acceptance testing.

G.1.5 Specifications for processes

A process specification should prescribe the steps to be taken in the manufacture of a product.

It should place emphasis on detailed stages of manufacture and the conditions under which they are to be performed, with regard, where appropriate, to specified characteristics of the product to be manufactured. It should also place emphasis on testing during the process, production control and the maintenance of manufacturer's records.

For an example of a process specification, see BS 6446.

G.1.6 Specifications for systems

A specification for a system should establish the requirements to which a completed, installed system should conform.

The requirements in a specification for a system can be difficult to specify and verify. Such a specification may form one of a series of standards which may include product specifications, methods and codes of practice. For an example of such a series, see BS 4737.

G.1.7 Specifications for provision of services

The provision of a service should be specified using the same principles of objective verifiability as for any other product specification. However, it is recognized that it might sometimes be necessary to make a requirement for personal actions or behaviour that can be verified only on the basis of audit, spot check or some other form of management system. The drafting of such requirements should be such that non-compliance is likely to be readily apparent when subjected to such measures.

Where it is neither obvious nor clearly implicit, the document should indicate which forms of verification (there may be several) would be deemed acceptable for the purposes of establishing conformity.

Compared with other types of specification, there is greater likelihood of a service specification having to address more than one audience. Where this arises, it is particularly important to identify the relevant parties in the Scope clause, and to differentiate in the text of the document the requirements to be met by different parties (see also **5.10**).

NOTE Further guidance on such standards, specific to codes of practice for building, is given in PD 6612.

G.2 Test methods

Detailed rules for test methods are given in Clause **18**.

G.3 Methods of specifying

Methods of specifying are usually written in the form of specifications.

A method of specifying should establish definitions and methods of verification and give guidance on factors to be taken into account in determining values for characteristics.

A method of specifying should, where appropriate, provide the basis for understanding and agreement between contracting parties, by giving direction for the formulation of enquiries and the placing of tenders and orders.

G.4 Codes of practice

The provisions (normative elements) of a code of practice are expressed in the form of recommendations, using the auxiliary “should” (see Clause **7**). A code of practice cannot contain requirements and cannot use the auxiliary “shall”. Phrases such as “It is essential” should not be used in normative text as they are ambiguous; anything that is intended to be a provision of the document should be worded as such, using “should”.

Normative and informative elements should be clearly distinguished by placing statements and factual information in notes or commentary (see Clause **24**) or informative annexes (see Clause **20**).

NOTE Old-style “practice specifications”, with “Recommendations” and “Commentary” sections, are no longer used. Recommendations are presented as main text, and informative material presented as described above. The term “practice specification” is no longer used for codes of practice, to avoid confusion between the different document types.

A code of practice should not be regarded as a “textbook”, nor should it be expected to include every detail and possible variation. Where appropriate, a code of practice should give a series of options and identify the implications of adopting each of them.

A code of practice cannot specify how items are to be manufactured. If there is need for a code of practice to refer to manufacturing processes that normally take place before materials or equipment leave the manufacturer, the code should refer to the appropriate product specification where one exists. If there is no appropriate specification, a description of the product or material to be used, or suitable types of product or material, should be given instead.

G.5 Guides

The wording of a guide is in the form of descriptive statements and recommendations, using the present tense and the auxiliary “should” for recommendations. A guide cannot contain requirements.

A guide should where possible be drafted in accordance with the same principles as a code of practice, although it is generally less specific and more discursive.

Guides do not have normative annexes, but can have normative references (see **20.2** and **15.5.3**, respectively).

G.6 Vocabularies

A vocabulary defines the terms used in a particular industrial sector or technological field. It provides definitions of terms to which reference should always be made within the same sector or field, rather than redefining the term in each separate standard.

The individual definitions within a vocabulary should be drafted in accordance with Clause **16** and BS ISO 10241-1.

The structure, system, numbering system, and any other information to help the user, should be set out in the Foreword or Introduction.

A table of contents may be included if the document is divided into more than one clause/section. An index of terms should be included if they are not given in alphabetical order.

G.7 UK documents complementing Eurocodes

G.7.1 National Annex to a Eurocode

A National Annex (NA) provides guidance on the application and applicability of a European or international standard. It is usually published within the UK implementation of the standard, but NAs to Eurocodes are published as separate documents.

The title of an NA should take the form of “UK National Annex to Eurocode X: *Title of the Eurocode*”.

A table of contents should only be included in an NA if the document is particularly long and/or complex. Most NAs do not have a table of contents.

A Foreword should not be included in an NA.

The title of an NA should be given on page 1 of the NA, in the form: “National Annex (informative) to BS EN 199X-X:20XX, Eurocode X: *Title of the Eurocode*”.

An Introduction should follow the title of an NA, in the form: “This National Annex has been prepared by BSI Subcommittee, B/525/9, *Committee title*. In the UK, it is to be used in conjunction with BS EN 199X-X:20XX, *Title of the Eurocode*”.

The structure of an NA should always be:

- NA.1 Scope
- NA.2 Nationally Determined Parameters (NDP)
- NA.3 Decisions on the status of informative annexes
- NA.4 References to non-contradictory complementary information (NCCI)

An NA may have a Bibliography, particularly where there are references to other Eurocodes and NAs within the text, or where the committee would like to provide “further reading”.

An NA should not include information that does not fit into the categories NDP, status of informative annexes or NCCI. Brief explanatory notes may be included. Replacement annexes (or replacement text, subclauses or values) may be supplied in place of the informative annexes.

NCCI should either be a PD (or PDs) drafted by the relevant BSI committee (see **G.7.2**), or material (printed or online) approved as NCCI by the relevant BSI committee.

Styles of nomenclature and typography of an NA should be the same as the Eurocode, e.g. variables, subscripts, capitalization.

The decimal comma should be used in an NA.

G.7.2 Non-contradictory complementary information

Where NCCI to a Eurocode is published as a Published Document (PD), it can include only informative text and cannot conflict with the Eurocode. It is usually written in the same form as a guide, and should follow the rules given in **G.5**.

Bibliography

Standards publications

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 0:2011 (withdrawn), *A standard for standards – Principles of standardization*

BS 0-3:1997 (withdrawn), *A standard for standards – Part 3: Specification for structure, drafting and presentation*

BS 4058 (ISO 5807), *Specification for data processing flow chart symbols, rules and conventions*

BS 4737 (all parts), *Intruder alarm systems*

BS 6446, *Specification for manufacture of glued structural components of timber and wood based panels*

BS EN 61355-1, *Classification and designation of documents for plants, systems and equipment – Part 1: Rules and classification tables*

BS EN 80416-1, *Basic principles for graphical symbols for use on equipment – Part 1: Creation of graphical symbols for registration*

BS EN IEC 62648, *Graphical symbols for use on equipment – Guidelines for the inclusion of graphical symbols in IEC publications*

BS EN ISO 128-20, *Technical drawings – General principles of presentation – Part 20: Basic conventions for lines*

BS EN ISO 1101, *Geometrical product specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

BS EN ISO 9000:2015, *Quality management systems – Fundamentals and vocabulary*

BS EN ISO 81714-1, *Design of graphical symbols for use in the technical documentation of products – Part 1: Basic rules*

BS EN ISO 14040, *Environmental management – Life cycle assessment – Principles and framework*

BS EN ISO 14044, *Environmental management – Life cycle assessment – Requirements and guidelines*

BS EN ISO/IEC 17000, *Conformity assessment – Vocabulary and general principles*

BS EN ISO/IEC 17050 (all parts), *Conformity assessment – Supplier's declaration of conformity*

BS ISO 129 (all parts), *Technical drawings – Indication of dimensions and tolerances*

BS ISO 704, *Terminology work – Principles and methods*

IEC Guide 103, *Guide on dimensional co-ordination*

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

IEC Guide 106, *Guide for specifying environmental conditions for equipment performance rating*

ISO 3, *Preferred numbers – Series of preferred numbers*

ISO 17, *Guide to the use of preferred numbers and of series of preferred numbers*

ISO Guide 64, *Guide for addressing environmental issues in product standards*

ISO/IEC Guide 2:2004, *Standardization and related activities – General vocabulary*

ISO/IEC Guide 15, *ISO/IEC code of principles on "reference to standards"*

ISO/IEC Guide 23, *Methods of indicating conformity with standards for third-party certification systems*

ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

ISO/IEC Guide 98-3, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

ISO/IEC Guide 99, *International vocabulary of metrology – Basic and general concepts and associated terms (VIM)*

N 250 D, *Policy guidelines and procedures for CEN/TC 250 Structural Eurocodes*

PD 6612, *Guidance on the preparation of codes of practice for building*

PD ISO Guide 31, *Reference materials – Contents of certificates, labels and accompanying documentation*

Other publications

[1] BRITISH STANDARDS INSTITUTION (BSI). *Style guide for British Standards of UK origin – Presentation, typography and standard wording*. Version 4. London: BSI, 2022.[4)]

[2] BRITISH STANDARDS INSTITUTION (BSI). *Style guide for PAS standards – Presentation, typography and standard wording*. London: BSI, 2022.[4)]

[3] BRITISH STANDARDS INSTITUTION (BSI). *Style guide for BSI Flex standards – Presentation, typography and standard wording*. London: BSI, 2022.[4)]

[4] OXFORD UNIVERSITY PRESS. *Shorter Oxford English Dictionary*. Sixth edition. Oxford: Oxford University Press, 2007.

[5] WALKER, P.M.B., ed. *Chambers Dictionary of Science and Technology*. Edinburgh: Chambers, 1999.

[6] GREAT BRITAIN. Trade Descriptions Act 1968. London: HMSO.

[4)] Available from https://www.bsigroup.com/en-GB/standards/Information-about-standards/how-are-standards-made/The-BSI-Guide-to-Standardization/.

