



DPC: 23/30464134 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

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Title: Draft BS ISO 14617-1 Graphical symbols for diagrams. Part 1: General rules.

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- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
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E-mail: admin.start@bsigroup.com

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

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Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

DRAFT INTERNATIONAL STANDARD

ISO/DIS 14617-1

ISO/TC 10/SC 10

Secretariat: DIN

Voting begins on:
2023-11-06

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Graphical symbols for diagrams —

Part 1: General rules

Symboles graphiques pour schémas —

Partie 1: Informations générales et index

ICS: 01.080.30

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This document is circulated as received from the committee secretariat.



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 10, *Process plant documentation*.

This third edition cancels and replaces the second edition (ISO 14617-1 to - 15:2002 and 2004), which has been technically revised and merged into two documents.

The main changes compared to the previous edition are as follows:

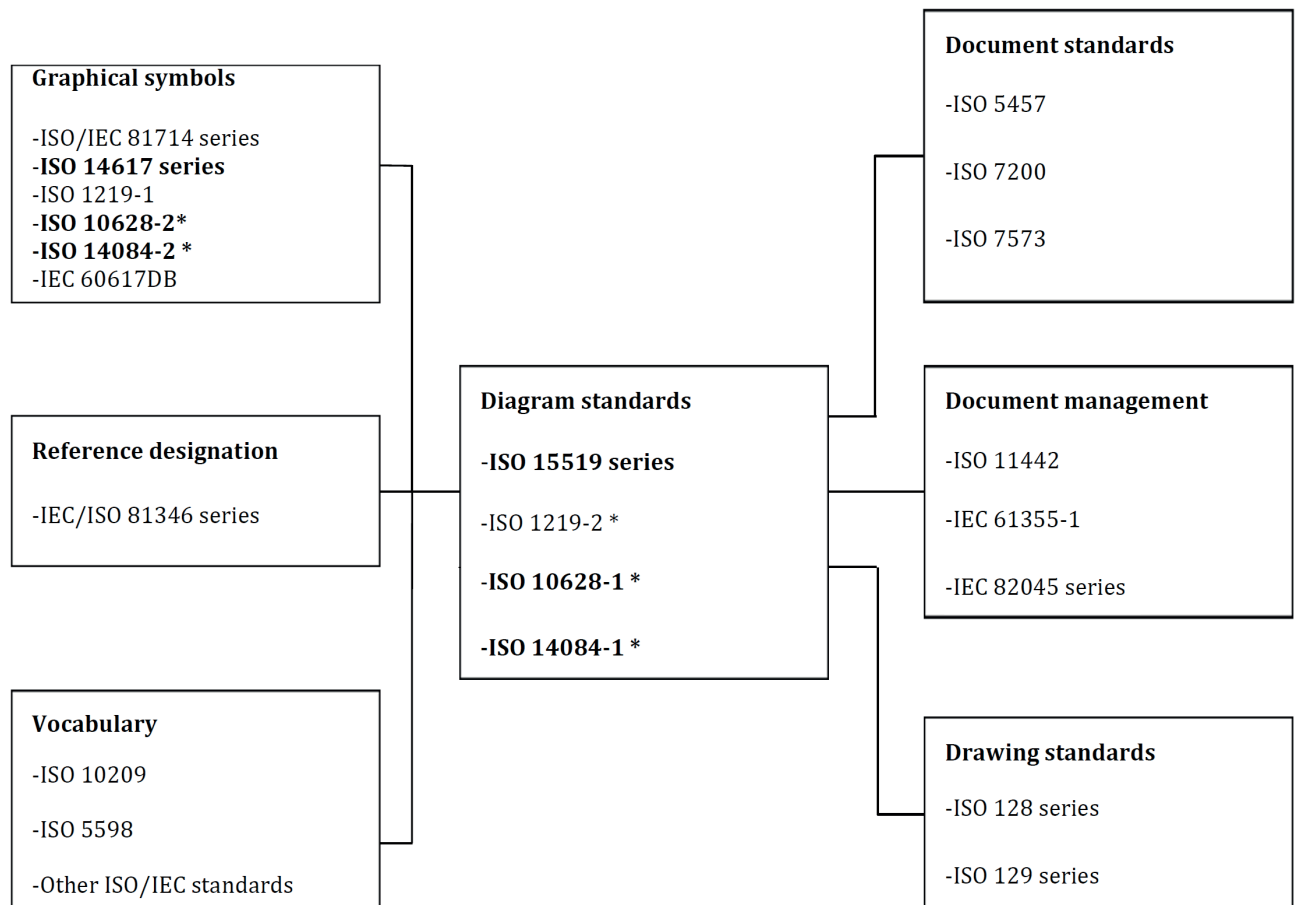
- Previous ISO 14617-1 has been technically revised;
- Previous ISO 14617-2 to ISO 14617-15 have been merged into one document;
- Symbols from other relevant standards, see [Figure 1](#), have been included.
- Annexes of previous ISO 14617 series have reconstructed and placed in their appropriate part 1 or part 2.

Introduction

0.1 General

ISO/TC10/SC10 prepares standards for diagrams including graphical symbols, which together with standards prepared by other ISO committees and IEC constitute the basis for preparation of diagrams.

The interrelations between these standards are illustrated in [Figure 1](#). Standards in bold are ISO/TC10/SC10 standards.



NOTE Standards marked * are collective application standards (See explanation in below clause: 0:4 Collective Application Standards)

Figure 1 — Interrelations between ISO and IEC standards for diagrams

0.2 Basis for revision of ISO 14617 series

ISO 14617 Part 1-12 and -15 were published in 2002. Parts 13 and 14 were published in 2004. The objective with the ISO 14617 project was to harmonize national and international standards for graphical symbols for diagrams and develop a recognized basic standard for graphical symbols for diagrams.

ISO 14617 series is widely used for development of diagrams for technical applications.

The use of the standard and development of the collective application standards ISO 10628-2 and ISO 14084-2 have led to the realization that a revision of the ISO 14617 series was needed.

0.3 Major revision issues

- Merging of the 15 parts of ISO 14617 series into two parts.
- Adding of new basis and supplementary symbols developed for ISO 10628-2 and ISO 14084-2.
- Deletion of symbols, which were duplicated from previous parts or “electro technical like”. Technological outdated symbols, especially within instrumentation and control, were also deleted.
- Term: "Application examples" renamed to "Symbol examples". The numbers of symbol examples were reduced for simplification.

NOTE 1 Deleted symbols from previous ISO 14617 Parts 2-15 are listed in informative [Annex B](#) of new ISO 14617Part 2.

NOTE 2 ISO and IEC had in the late 1990s agreed to develop a common standard for graphical symbol for technical diagrams. The ISO input was the previous work on the ISO 14617 project. The IEC input was the present IEC 60617 series. The common ISO and IEC standard was cancelled in an early stage, as IEC preferred to work for a publication of IEC 60617 in data base form. At that time ISO was not prepared, for a similar data base. The numbers of "electro technical like" symbols were deleted before publication of the first parts in 2002.

- Deletion of almost all of clause 3 in ISO 14617 series because of simplifying this document. Instead, ISO/IEC standards which define the name of graphical symbol are directory inserted in the Table as supplement. See [Table 2](#).
- Most graphical symbols for fluid power diagrams, e.g. fluid power valves, have been deleted in this revised ISO 14617 because it is defined in ISO 1219-1 as the collective application standard (see 0.4 and 0.5).
- The symbols of measurement and control functions such as mathematical functions and process functions, which were defined in the previous ISO 14617 part 2 and part 6, are not included in this new ISO 14617 series from the following two reasons. One is that this new ISO 14617 concentrates to specify the symbols for physical industrial components and products such as pipes, valves, pumps, and sensors and industrial processes. The other is that letter codes in ISO 14617 Part 6, which have been moved to ISO 15519-2, is inconsistent with the those defined in IEC 62424. This problem will be solved and published as a collective application standard in future.
- The symbols using letter codes, which were defined in the previous ISO 14617 part 6, are not included in this new ISO 14617 because the definition of letter codes moved to ISO 15519-2:2015. See [Annex C](#).
- A new clause for vacuum technology is established as referred to withdrawn ISO 3753:1977, DIN 28401:2022, and JIS Z 8207:1999. This is because vacuum technology utilizes many unique pumps, gauges, and so on.
- The structuring of presentation of graphical symbols has been changed in order to improve user's access to navigate and find symbols.

0.4 Collective application standards

Technical committees, requiring a field specific standard, are allowed, in co-operation with ISO/TC 10, to develop their own collective application standard for preparation of diagrams and graphical symbols in accordance with the rules given in ISO 15519-1 and/or ISO 14617. Collective application standards should not be contradictory with respect to the source standard(s).

0.5 Graphical symbols for fluid power – ISO 1219-1

The previous ISO 14617 (all parts) includes fluid power symbols from the present valid standard for graphical symbols for fluid power component ISO 1219-1, 1991 edition. When this document was revised in 2006, ISO/TC10/SC10 and ISO/TC 131 agreed to harmonize it with ISO 14617 (all parts) and publish ISO 1219-1:2006, as a collective application standard of ISO 14617. During preparation of this revision of ISO 14617, it was realized that the harmonization benefits between graphical symbols

for process diagrams and fluid power diagrams were minimal. Thus, most graphical symbols for fluid power diagrams, e.g. fluid power valves, have been deleted in the revised ISO 14617.

Graphical symbols for diagrams —

Part 1: General rules

1 Scope

This document provides general rules and guidelines for the preparation and presentation of graphical symbols for diagrams, which are related to physical industrial components, products and processing.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 1219-1, *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 1: Graphical symbols for conventional use and data-processing applications*

ISO 1219-2, *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 2: Circuit diagrams*

ISO 10209, *Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation*

ISO 15519 (all parts), — *Specifications for diagrams for process industry*

ISO 17724, *Graphical symbols — Vocabulary*

ISO 81714 (all parts), — *Design of graphical symbols for use in the technical documentation of products*

IEC 60617 (all parts), *Graphical Symbols for Diagrams*

IEC 81714 (all parts), — *Design of graphical symbols for use in the technical documentation of products*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform (OBP): available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

3.1

graphical symbol

visually perceptible figure with a particular meaning used to transmit information independently of language

Note 1 to entry: The graphical symbol may represent objects of interest, such as products, functions or requirements for manufacturing, quality control, etc.

Note 2 to entry: A graphical symbol is not to be confused with the simplified representation of products which are normally drawn to scale and which can look like a graphical symbol.

Note 3 to entry: The graphical symbol means the same as the technical product documentation symbol (TPD-symbol).

[SOURCE: ISO 17724:2003, 31; ISO 81714-1:2010, 3.1]

3.2
basic symbols

symbols which can be used direct in diagrams or combined with supplementary symbols to form symbol examples

3.3
supplementary symbols

symbols which primary shall be combined with a basic symbol to form a symbol example

3.4
application rules

information on how to design composite symbols and how to apply the graphical symbols in a diagram

Note 1 to entry: The symbol examples are to be regarded as guidelines.

Note 2 to entry: The application rules for the symbols are specified in Annex A of ISO 14617-2.

3.5
symbol examples

examples on how to combine basis and supplementary symbols using the application rules

Note 1 to entry: Each symbol example is accompanied by information on which graphical symbols have been used to compose itself.

Note 2 to entry: The symbol examples are to be regarded as guidelines.

3.6
registration numbers

unique number assigned each graphical symbol

Note 1 to entry: In principle, this number is arbitrarily chosen. No information can be derived from it.

Note 2 to entry: The registration number will remain unchanged throughout the lifetime of the corresponding graphical symbol, including in future revisions of this publication. If a graphical symbol is slightly changed in the future, the registration number shall be supplemented with one or more characters. If the graphical symbol is substantially changed, it shall instead be given a new registration number.

Note 3 to entry: Three types of registration number are used:

Basic and supplementary symbols	nnnn
Application rules	Rnnnn
Symbol examples	Xnnnn

where "n" is a digit.

The supplemented registration number according to a small change of symbol is:

nnnn-m

where "m" is the number of changing times.

Note 4 to entry: Informative [Annex C](#) specifies common registration number rules for ISO 14617 and derived Collective Application Standards.