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Secretariat: BSI

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2021-01-26

Voting terminates on:
2021-03-23

Technical product documentation — Symbols used in technical product documentation — Proportions and dimensions

*Documentation technique de produits — Symboles utilisés dans la
documentation technique de produits — Proportions et dimensions*

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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General conditions	1
5 Dimensions	1
6 Proportions	2
Bibliography	79
Symbol name index	82
Document index	99

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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 of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 1, *Basic conventions*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS F01, *Technical drawings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 7083:1983), which has been technically revised.

The main changes to the previous edition are as follows:

- added symbols for standards under ISO/TC 10 and ISO/TC 213.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is a collection of all the current symbols used in technical product documentation, predominantly created in ISO/TC 10 and ISO/TC 213. The symbols are indexed to the individual standards in which they were created and implemented. The ISO/TC 10/SC 1 validation process ensures the harmonization of symbols.

When developing new symbols for use in technical drawings, new symbols are submitted to ISO/TC 10 for review. ISO/TC 10 will confirm that a duplicate symbol with a different meaning does not exist and will add the new symbol to this document once the originating standard has been approved and published.

The following is a description of the process used for incorporating a new symbol:

- a) The originator fills in the new symbol application form.
- b) The originator attaches the symbol graphics file per the accepted graphics formats in the form.
- c) The originator sends the application and graphics file to ISO/TC 10/SC 1.
- d) ISO/TC 10/SC 1 forwards the documents to the validation team (appointed group of experts).
- e) The validation team reviews the application and symbol according to the following areas:
 - justification for new symbol;
 - design;
 - conformity with ISO 81714-1;
 - duplication and similarity to existing and registered symbols.
- f) The validation team prepares their report and sends the application documents back to ISO/TC 10/SC 1. Rejected proposals are sent back to the originator with an attached cause of rejection.
- g) If the new symbol request is approved, the originator is notified and the symbol is appointed a registry number and submitted to ISO Central Secretariat for registration and publication on the ISO Online browsing platform: <https://www.iso.org/obp>.
- h) The approved new symbol is added to the list of symbols to be added to the next revision of this document.

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Technical product documentation — Symbols used in technical product documentation — Proportions and dimensions

1 Scope

This document specifies the recommended proportions for the symbols used in technical product documentation. It gives recommended dimensions based on the grid related to the line width to be used.

This document does not apply to symbols used in process plant documentation, which are covered in ISO 81714-1.

The proportions of the symbols are based on the standard heights of lettering given in ISO 3098-1.

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 3098-1, *Technical product documentation — Lettering — Part 1: General requirements*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 General conditions

The lettering used with the symbols shall be in accordance with the specifications of ISO 3098-1.

On any one drawing the height, line width and type of lettering of the symbols should be equal to those applied for the dimensioning and other indications on that drawing.

The symbols and their lettering are produced by digital means or may be hand-written (using a rule for drawing the frames) or executed by other appropriate methods (e.g. stencils, transfers, mechanical drawing).

5 Dimensions

Recommended dimensions of the symbols with lettering type A are specified in [Table 1](#); dimensions for those with lettering type B are specified in [Table 2](#).

Table 1 — Lettering type A

Dimensions in millimetres

Characteristic	Recommended dimensions					
Height of frame (H)	7	10	14	20	28	40
Height of characters (h)	3,5	5	7	10	14	20
Datum target indicator diameter (D) ^a	14	20	28	40	58	80
Line width (d)	0,25	0,35	0,5	0,7	1	1,4
^a See Table 10 .						

Table 2 — Lettering type B

Dimensions in millimetres

Characteristic	Recommended dimensions						
Height of frame (H)	5	7	10	14	20	28	40
Height of characters (h)	2,5	3,5	5	7	10	14	20
Datum target indicator diameter (D) ^a	10	14	20	28	40	56	80
Line width (d)	0,25	0,35	0,5	0,7	1	1,4	2
^a See Table 10 .							

The recommended widths of tolerance indicators frame are:

- first compartment, equal to height of frame (H);
- second compartment, to suit the length of the inscription;
- third and subsequent compartments, if required, to suit the width of the reference letter (or letters).

The distances between the vertical strokes of the compartments and the inscriptions shall be at least twice the line width, with a minimum of 0,7 mm.

6 Proportions


Examples for the proportions of the symbols for use with lettering type B, vertical or inclined, are shown in [Table 3](#) to [Table 50](#). The values are not part of the symbols.

The configurations are depicted on a grid with a spacing equal to the line width. The design of the inscribed characters is mostly not shown but shall be the same as in ISO 3098-1 for lettering type B, vertical or inclined.

For the alternative lettering type A, vertical or inclined, appropriate grids should be used.

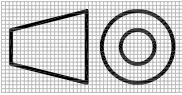
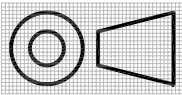
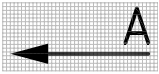
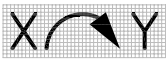
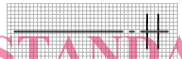

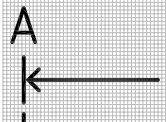

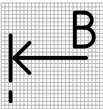

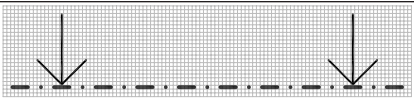
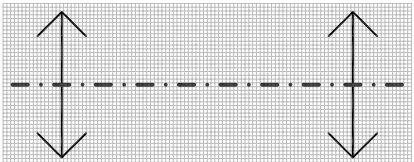
The symbols in ISO 128-2:2020 are shown in [Table 3](#).

Table 3 — ISO 128-2:2020 symbols

No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
1			Dot ISO 128-2

The symbols in ISO 128-3:2020 are shown in [Table 4](#).

Table 4 — ISO 128-3:2020 symbols

No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
2			First angle projection ISO 128-3 ISO 5456-2
3			Third angle projection ISO 128-3 ISO 5456-2
4			Reference arrow ISO 128-3 Letter A shown as an example.
5			Arc arrow ISO 128-3 Letter X and Y shown as examples.
6			Symmetry ISO 128-3 ISO 129-1 The symbol is the two vertical lines (shown applied to a centreline).
7			30° cuts and section arrows ISO 128-3 Letter A shown as an example.
8			90° cuts and section arrows ISO 128-3 Letter A shown as an example.
9			Direction of view ISO 128-3
10			Cutting plane ISO 128-3 Letter B shown as an example.
11			Location of detail ISO 128-3
12			Direct orthographic projection ISO 128-3
13			Mirrored orthographic projection ISO 128-3

The symbols in ISO 128-15:2013 are shown in [Table 5](#).

Table 5 — ISO 128-15:2013 symbols

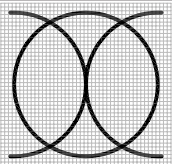
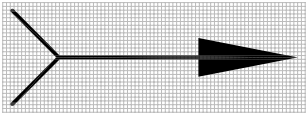
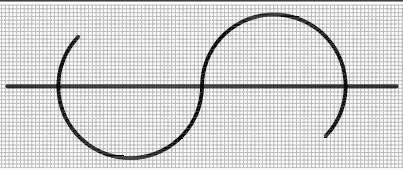
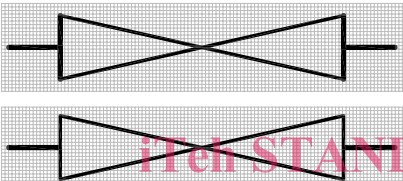
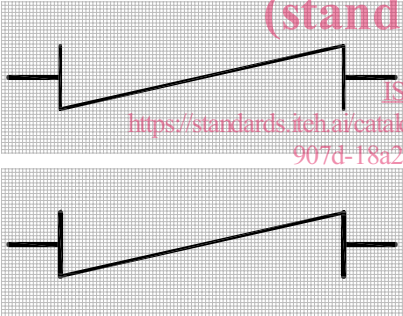
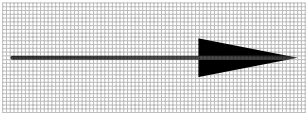
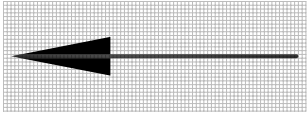






No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
14			Amidship ISO 128-15
15			Generic seam ISO 128-15
16			Segmentation seam ISO 128-15
17			Small opening section ISO 128-15
18			Small opening section ISO 128-15
19		CL (see ISO 3098-1)	Centre line ISO 128-15
20		RL (see ISO 3098-1)	Rounded line ISO 128-15
21		FR (see ISO 3098-1)	Frame number ISO 128-15
22		BL (see ISO 3098-1)	Moulded base line ISO 128-15
23		WL (see ISO 3098-1)	Waterline ISO 128-15
24			Projection direction (bow direction) ISO 128-15

Table 5 (continued)

No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
25			Projection direction (stern direction) ISO 128-15
26			Swage and groove; front side ISO 128-15
27			Swage and groove; back side ISO 128-15
28			Swage and groove; front side ISO 128-15
29			Swage and groove; back side ISO 128-15
30			Swage and groove; front side ISO 128-15
31			Swage and groove; back side ISO 128-15

The symbols in ISO 129-1:2018 are shown in Table 6.

Table 6 — ISO 129-1:2018 symbols








No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
32			Diameter ISO 129-1 ISO 5261
33		 (see ISO 3098-1)	Radius ISO 129-1
34		 (see ISO 3098-1)	Spherical radius ISO 129-1
35			Square ISO 129-1 ISO 5261
36			Spherical diameter ISO 129-1
37			Repeated spacing ISO 129-1 ISO 6433
38			Indication of a point ISO 129-1

Table 6 (continued)

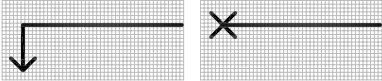


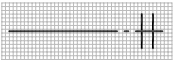
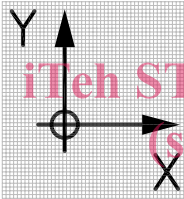








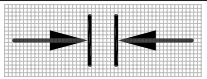

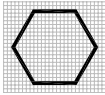
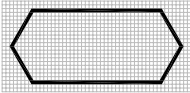


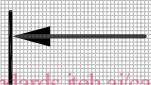
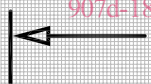
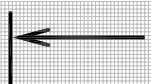
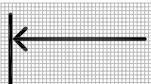
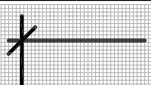
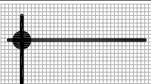
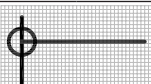
No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
39			Indication of level ISO 129-1
40		 (see ISO 3098-1)	Out-of-scale ISO 129-1 The number 50 is shown as an example of application.
41		 (see ISO 3098-1)	Auxiliary dimension ISO 129-1 The number 50 is shown as an example of application.
42			Symmetry ISO 129-1 ISO 128-3 The symbol is the two vertical lines (shown applied to a centreline).
43			Origin of a cartesian coordinate system ISO 129-1
44			Separation symbol (point) ISO 129-1
45			Plus or minus ISO 129-1 ISO 13715
46			Arc length ISO 129-1 ISO 129-5
47			Thickness of thin objects ISO 129-1
48			Depth ISO 129-1
49			Cylindrical counterbore ISO 129-1
50			Countersink ISO 129-1
51			Developed length ISO 129-1
52			Surface indicator ISO 129-1
53			Between ISO 129-1

Table 6 (continued)

No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
54			Flagnote ISO 129-1 ISO/TS 17863 The flagnote symbol is used with a number placed inside of it.
55			Flagnote ISO 129-1 ISO 14405-1 The flagnote symbol is used with a number placed inside of it.
56			Flagnote ISO 129-1 The flagnote symbol is used with a number placed inside of it.
57			Flagnote ISO 129-1 The flagnote symbol is used with a number placed inside of it.
58			Arrowhead, closed and filled ISO 129-1
59			Arrowhead, closed ISO 129-1
60			Arrowhead, open ISO 129-1
61			Arrowhead, open, included angle 90 ISO 129-1
62			Oblique stroke ISO 129-1
63			Point ISO 129-1
64			Origin circle ISO 129-1

The symbols in ISO 129-4:2013 are shown in [Table 7](#).

Table 7 — ISO 129-4:2013 symbols









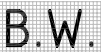



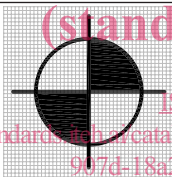





No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
65			Flanged plate ISO 129-4
66			Flat bar ISO 129-4
67			Round steel bar ISO 129-4
68			Steel pipe ISO 129-4
69			Square steel bar ISO 129-4
70			Square hollow section ISO 129-4
71			Half round steel ISO 129-4
72		 or HP	Bulb flat ISO 129-4
73			Equal L-section ISO 129-4 ISO 129-5 ISO 5261
74			Unequal L-section ISO 129-4
75			T-steel ISO 129-4
76			Steel channel ISO 129-4 ISO 129-5 ISO 5261
77			I profile ISO 129-4 ISO 129-5 ISO 5261
78			Combined flat ball steel ISO 129-4

Table 7 (continued)

No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
79		 (see ISO 3098-1)	Bracket ISO 129-4
80		 (see ISO 3098-1)	Bracket web ISO 129-4
81		 (see ISO 3098-1)	Web ISO 129-4
82		 (see ISO 3098-1)	Face plate ISO 129-4
83		 (see ISO 3098-1)	Flange ISO 129-4
84		 (see ISO 3098-1)	Tripping bracket ISO 129-4
85		 (see ISO 3098-1)	Shaft system section ISO 129-4
86		 (see ISO 3098-1)	Coaming height ISO 129-4
87		 (see ISO 3098-1)	Manhole ISO 129-4

The symbols in ISO 129-5:2018 are shown in [Table 8](#)

Table 8 — ISO 129-5:2018 symbols

No.	ISO reg. no.	Symbol	Symbol name or description Standards symbol used in
88			Arc length ISO 129-1 ISO 129-5
89			Equal or unequal leg angle iron ISO 129-5 ISO 5261
90			I-beam section ISO 129-5 ISO 5261