INTERNATIONAL STANDARD

**ISO 128-25**

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# Technical drawings — General principles of presentation —

## Part 25:
Lines on shipbuilding drawings

*Dessins techniques — Principes généraux de représentation —*

*Partie 25: Traits utilisés pour les dessins de construction navale*



Reference number
ISO 128-25:1999(E)

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 128-25 was prepared by the Technical Committee ISO/TC 10, *Technical drawings, product definition and related documentation*, Subcommittee SC 1, *Basic conventions*.

ISO 128 consists of the following parts, under the general title *Technical drawings — General principles of presentation*:

— *Part 20: Basic conventions for lines*

— *Part 21: Preparation of lines by CAD systems*

— *Part 22: Basic conventions and applications for leader lines and reference lines*

— *Part 23: Lines on construction drawings*

— *Part 24: Lines on mechanical engineering drawings*

— *Part 25: Lines on shipbuilding drawings*

— *Part 30: Basic conventions for views*

— *Part 40: Basic conventions for cuts and sections*

— *Part 41: Cuts and sections for mechanical engineering drawings*

— *Part 50: Basic conventions for representing areas on cuts and sections*

— *Part 60: Additional conventions for views, cuts and sections*

Annex A of this part of ISO 128 is for information only



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# Technical drawings — General principles of presentation —

# Part 25:
Lines on shipbuilding drawings

## 1 Scope

This part of ISO 128 specifies application rules and basic conventions for the types of lines on shipbuilding drawings.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 128. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 128 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 128-20:1996, *Technical drawings — General principles of presentation — Part 20: Basic conventions for lines.*

ISO 6428:1982, *Technical drawings — Requirements for microcopying.*

## 3 General principles

The basic types of lines, their designations and dimensions as well as general rules for draughting of lines are specified in ISO 128-20.

The requirements for microcopying are specified in ISO 6428.

## 4 Types of lines and their application

The different types of lines and their application are described in Table 1.

The first part of the line number in Table 1 corresponds to the basic type number, in accordance with ISO 128-20.

**Table 1 — Types of lines and their application**

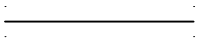
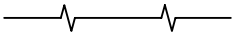
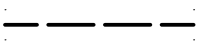
| Line | | Application | | Examples, see figure |
|---|---|---|---|---|
| No. | Description and representation | | | |
| 01.1 | Continuous narrow line  | .1 | visible edges | A.2 |
| | | .2 | seams and butts | A.18, A.20 |
| | | .3 | visible profiles | A.1, A.6 |
| | Continuous narrow undulating line  | .4 | preferably freehand·drawn boundaries of partial or interrupted views and sections, if the boundary is not a line of symmetry or a centreline[a] | A.1 |
| | Continuous narrow line with zigzags  | .5 | preferably computer·drawn boundaries of partial or interrupted views and sections, if the boundary is not a line of symmetry or a centreline[a] | A.2 |
| 01.2 | Continuous wide line  | Sections of structural members, for example | | |
| | | .1 | outer plating | A.2, A.19, A.20 |
| | | .2 | decks | A.6 |
| | | .3 | inner bottoms | A.19 |
| | | .4 | bulkheads and walls | A.20 |
| | | .5 | bottom girders and floors | A.19 |
| | | .6 | transverse girders, longitudinal girders | A.4 |
| | | .7 | stringers | — |
| | | .8 | web frames | A.2 |
| | | .9 | brackets | A.6 |
| | | .10 | profiles | A.19 |
| 02.1 | Dashed narrow line  | .1 | hidden edges | A.2 |
| | | .2 | hidden profiles | A.1, A.2, A.6, A.18, A.20 |
| 02.2 | Dashed wide line  | Hidden plates, for example | | |
| | | .1 | decks | A.18 |
| | | .2 | inner bottoms | A.18 |
| | | .3 | walls and bulkheads[b] | A.18, A.20 |
| | | .4 | bottom girders | A.18 |
| | | .5 | floors | A.18 |
| | | .6 | brackets | A.6 |

**Table 1** *(continued)*

| Line No. | Line Description and representation | Application | | Examples, see figure |
|---|---|---|---|---|
| 04.1 | Long-dashed dotted narrow line | .1 | veed-out openings | A.18, A.20 |
| | | .2 | intersections, knuckles, centrelines | A.16, A.17 |
| 04.2 | Long-dashed dotted wide line | Hidden plates, for example | | |
| | | .1 | deck girders | A.20 |
| | | .2 | web frames | A.2, A.18 |
| | | .3 | transverse webs, stringers | A.20 |
| 05.1 | Long-dashed double-dotted narrow line | .1 | outlines of adjacent parts | A.18 |
| | | .2 | parts situated in front of or behind the cutting plane | — |
| 01+03 | Railway line | .1 | hidden plates, e.g. tight walls or bulkheads[b] | A.20 |

[a] It is recommended to use only one type of line on one drawing.

[b] The decision to use the type of line 02.2.3 or 01+03 is left to the shipyard.

Examples of applications are given in annex A.

## 5 Line widths and line groups

Two line widths are normally used on shipbuilding drawings. The proportions between the line widths should be not smaller than 1:2. A proportion of 1:3 is also allowed.

The line groups are specified in Table 2.

**Table 2 — Line groups**

Dimensions in millimetres

| Line group | Line widths for line No. | | |
|---|---|---|---|
| | 01.2 - 02.2 - 04.2 | 01.1 - 02.1 - 04.1 - 05.1 | 01+03 |
| 0,5 | 0,5 | 0,25 | 1,0 |
| 0,7 | 0,7 | 0,35 | |
| 1,0 | 1,0 | 0,5 | |

The widths and groups of lines should be chosen according to the type, size and scale of the drawing and according to the requirements for microcopying and/or other methods of reproduction.

# Annex A
(informative)

# Application examples

Table A.1 gives examples of the application of the different types of lines indicating the reference number given in Table 1.

**Table A.1 — Application examples**

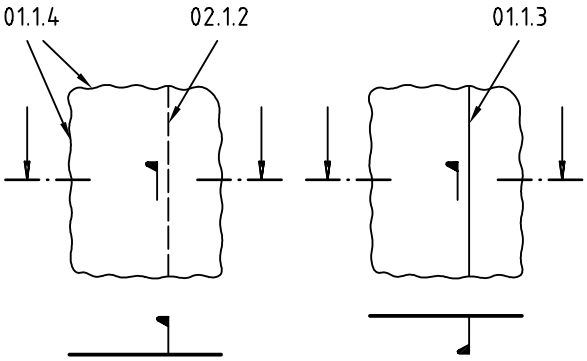
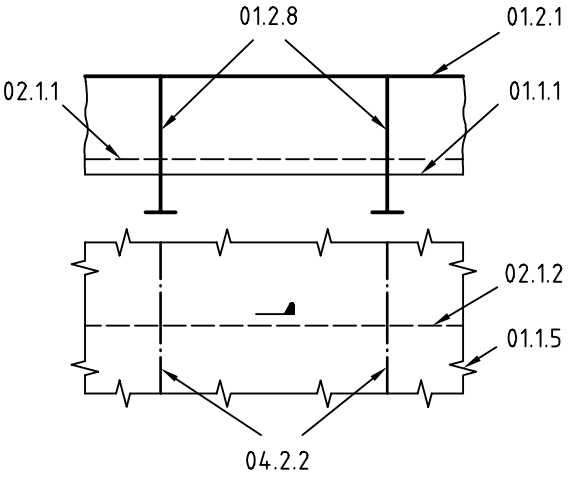
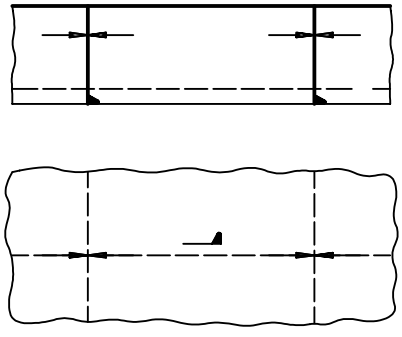
| Figure | Representation | Explanation, remarks |
|---|---|---|
| A.1 | Profiles on panels, general<br>  | Representation in walls, decks, etc.<br><br>The actual shape of the profile section used may also be represented.<br><br>Designation of profile sections shall be in accordance with ISO 5261. |
| A.2 | Continuous profile sections crossing with girders<br>  | |
| A.3 | Welded ends of profiles<br>  | Welded ends of profile sections shall be marked by arrows.<br><br>When such profile ends are represented in both top view and projection, arrows may be dispensed within one view.<br><br>For identification of the lines, see Figure A.2. |

**Table A.1** (*continued*)

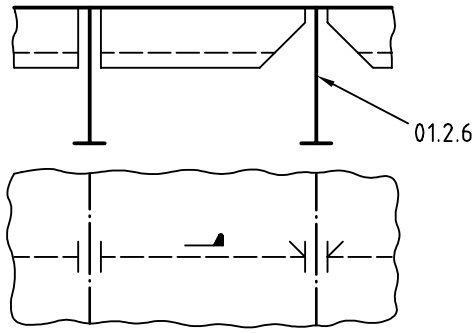
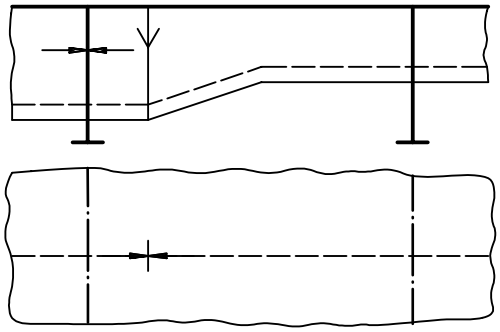
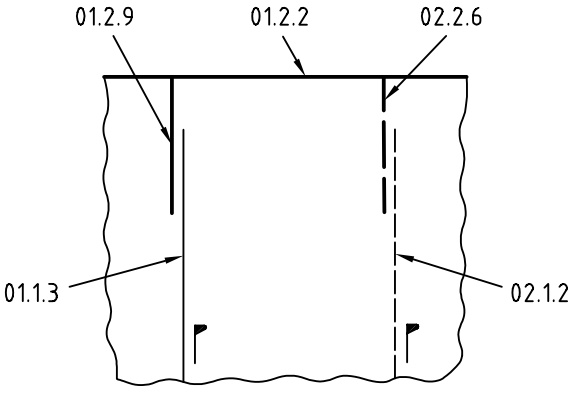
| Figure | Representation | Explanation, remarks |
|---|---|---|
| A.4 | Sniped profile sections   | A transverse line is used to show free ending profile sections in top view/projection drawings. An end cut under 30° or 45° is marked by an additional sloped dash.<br><br>When such profile sections are represented in both top view/projection and section, the transverse lines may be dispensed with in one of the drawings.<br><br>For identification of the lines, see Figure A.2. |
| A.5 | Junction between profile sections of different sizes  | In sectional representations of the junction the arrows are omitted.<br><br>For identification of the lines, see Figure A.2. |
| A.6 | Profile sections connected with overlapping brackets   | |

**Table A.1** (*continued*)

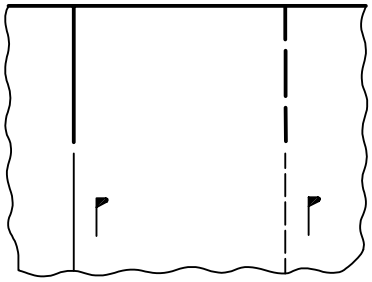
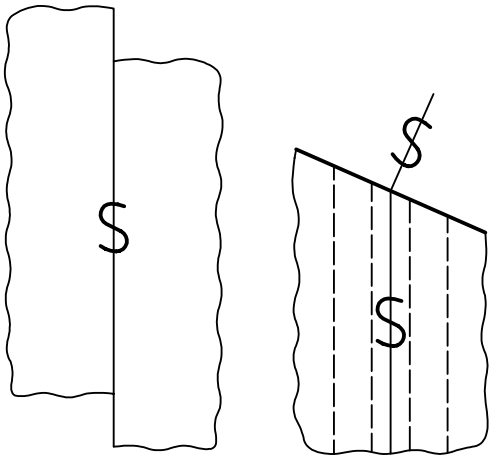
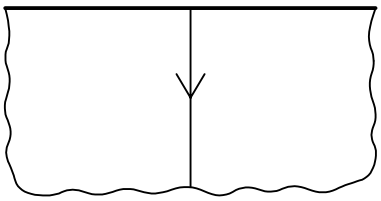
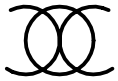
| Figure | Representation | Explanation, remarks |
|---|---|---|
| A.7 | Profile sections connected with inserted brackets  | For identification of the lines, see Figure A.6. |
| A.8 | Section butt  | The sign shown here shall be used on drawings which do not provide welding information as specified in ISO 2553.<br><br>The sign designates the butt of adjoining sections. It is drawn in top views and projections, while in sectional drawings it is represented externally in conjunction with line 01.1. |
| A.9 | Butt joint of plates and/or profile sections  | The sign shown shall be used on drawings which do not provide welding information, as specified in ISO 2553. |
| A.10 | Change of frame direction  | Representation using line 01.2 |

**Table A.1** (*continued*)

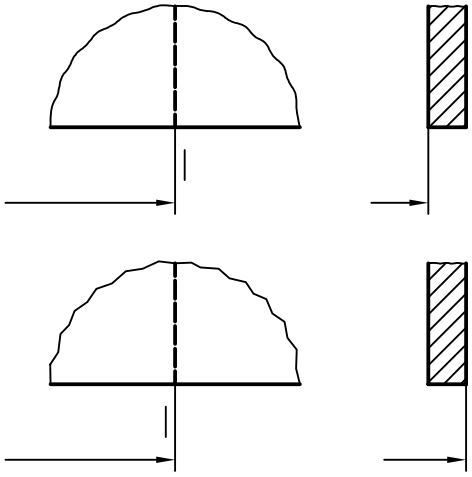
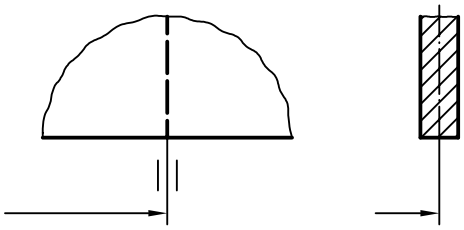
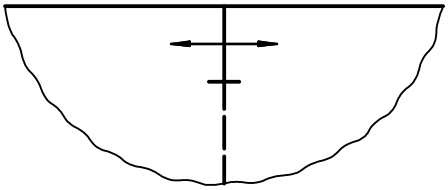
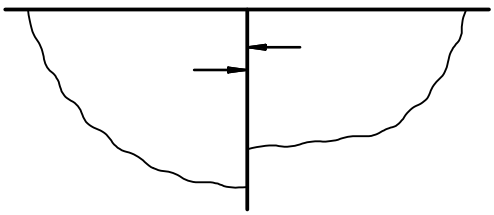
| Figure | Representation | Explanation, remarks |
|---|---|---|
| A.11 | Indication of position of moulded edge of plates  | To indicate the moulded edge of plates and profile sections, it shall be designated by a dash drawn adjacent to the ancillary dimension line. |
| A.12 | Indication of dimension referred to the centreline of plates  | Indication of dimension referred to the centreline, e.g. of main girders or other thick structural members |
| A.13 | Continuous parts at junctions  | The arrows indicate that the component in fragmentary representation is continuous. |
| A.14 | Non-continuous parts at junctions  | The arrows indicate that the components in fragmentary representation end at the junction. |

**Table A.1** (*continued*)

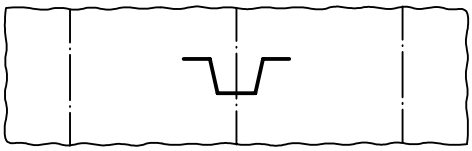
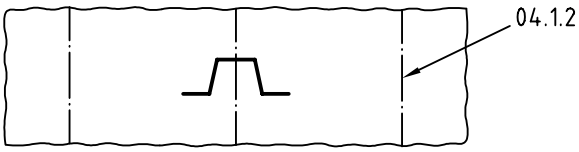
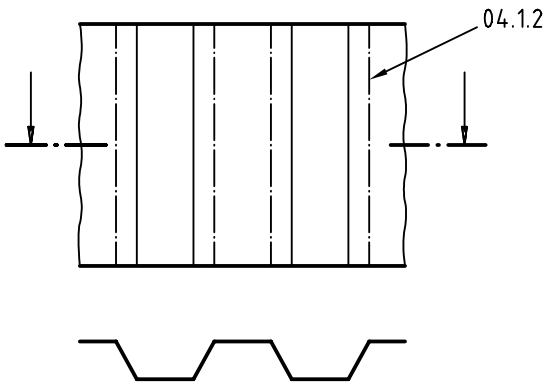
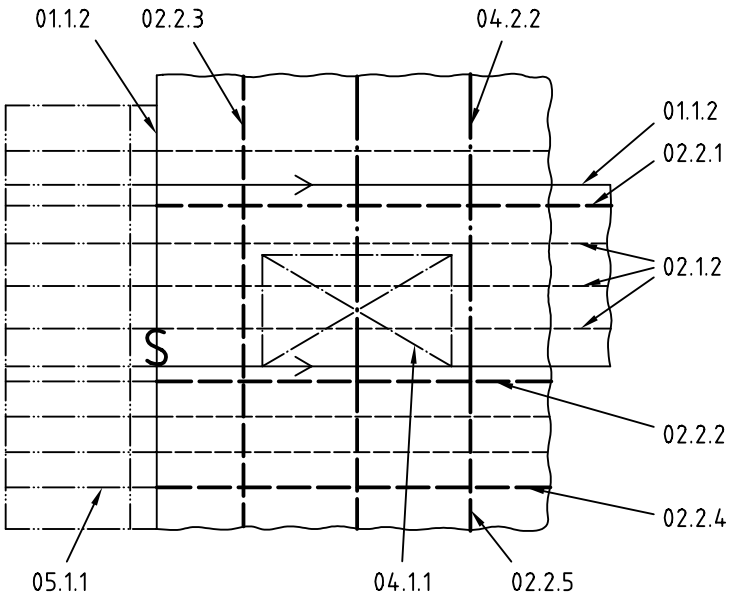
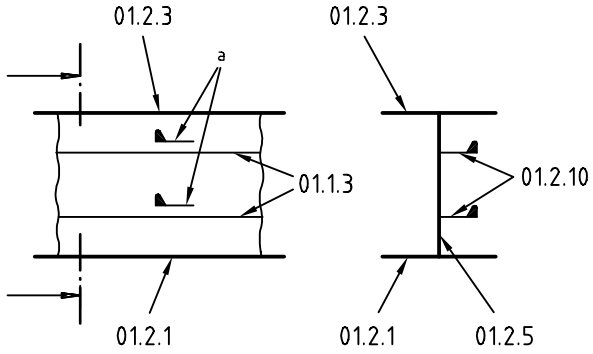
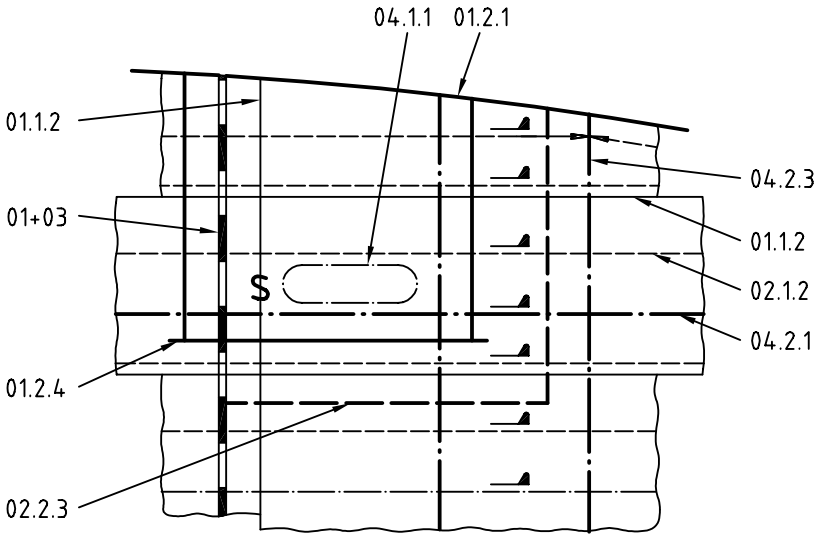
| Figure | Representation | Explanation, remarks |
|---|---|---|
| A.15 | Swedge, facing forward  | For a swedged wall one representation of the swedge is sufficient.<br><br>The distance between swedges shall be drawn to scale. |
| A.16 | Swedge, facing down   | |
| A.17 | Corrugated bulkheads   | Nearby knuckles are represented by continuous narrow lines; distant ones by long-dashed dotted narrow lines. |
| A.18 | Application of different lines exemplified in a view of a shell expansion   | |

**Table A.1** (*continued*)

| Figure | Representation | Explanation, remarks |
|---|---|---|
| A.19 | Application of continuous wide lines exemplified by a detail of a stiffened longitudinal girder of a bottom structure<br>  <br><br>[a] To be indicated only when no sectional drawing is supplied | |
| A.20 | Application of different lines and symbols exemplified by a deck detail<br>  <br> | |

# Bibliography

[1] ISO 2553:1992, *Welded, brazed and soldered joints — Symbolic representation on drawings.*

[2] ISO 5261:1995, *Technical drawings — Simplified representation of bars and profile sections.*

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