
**Technical drawings — General principles of
presentation —**

**Part 44:
Sections on mechanical engineering
drawings**

*Dessins techniques — Principes généraux de représentation —
Partie 44: Coupes et sections applicables aux dessins industriels*



Reference number
ISO 128-44:2001(E)

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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.

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.

Attention is drawn to the possibility that some of the elements of this part of ISO 128 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 128-44 was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 1, *Basic conventions*.

This first edition of ISO 128-44 is based on ISO 128:1982, subclause 4.4 to 4.9 of which it cancels and replaces.

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

- *Part 20: Basic convention 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 34: Views on mechanical engineering drawings*
- *Part 40: Basic conventions for cuts and sections*
- *Part 44: Sections on mechanical engineering drawings*
- *Part 50: Basic conventions for representing areas on cuts and sections*

The following part is under preparation:

- *Part 1: Introduction and index*

Technical drawings — General principles of presentation —

Part 44: Sections on mechanical engineering drawings

1 Scope

This part of ISO 128 specifies general principles for presenting sections on mechanical engineering drawings following the orthographic projection methods specified in ISO 5456-2. For areas on sections, representation is according to ISO 128-50^[1].

Attention has also been given to the requirements of reproduction, including microcopying in accordance with ISO 6428.

NOTE The basic rules for cuts and sections are given in ISO 128-40^[2].

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

ISO 128-24:1999, *Technical drawings — General principles of presentation — Part 24: Lines on mechanical engineering drawings.*

ISO 128-40, *Technical drawings — General principles of presentation — Part 40: Basic conventions for cuts and sections.*

ISO 5456-2, *Technical drawings — Projection methods — Part 2: Orthographic representations.*

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

ISO 10209-1, *Technical product documentation — Vocabulary — Part 1: Terms relating to technical drawings: general and types of drawings.*

ISO 10209-2, *Technical product documentation — Vocabulary — Part 2: Terms relating to projection methods.*

3 Terms and definitions

For the purposes of this part of ISO 128, the terms and definitions given in ISO 10209-1 and ISO 10209-2 apply.

4 General

In principle, ribs, fasteners, shafts, spokes of wheels and the like are not cut in longitudinal sections, and should therefore not be represented as sections.

Like views, sections may be shown in a position other than that indicated by the arrows for the direction of their viewing.

5 Cutting planes

A section in one plane is shown in Figure 1 and Figure 2.

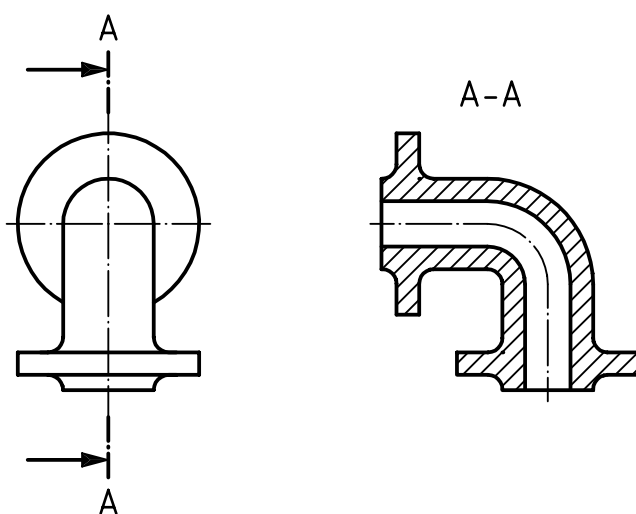


Figure 1 — Section in one plane

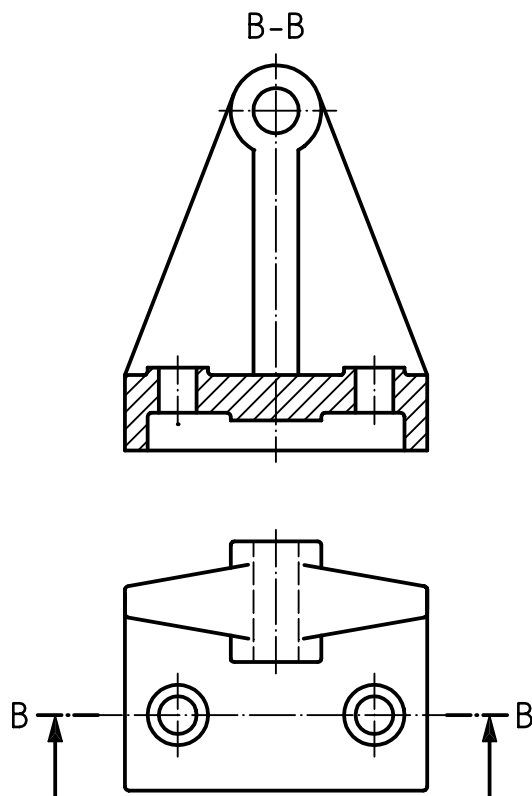


Figure 2 — Section in one plane

A section in two parallel planes is shown in Figure 3.

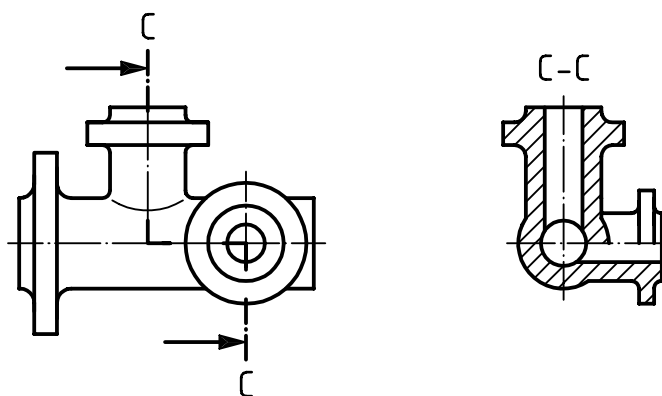


Figure 3 — Section in two parallel planes

A section in three contiguous planes is shown in Figure 4.

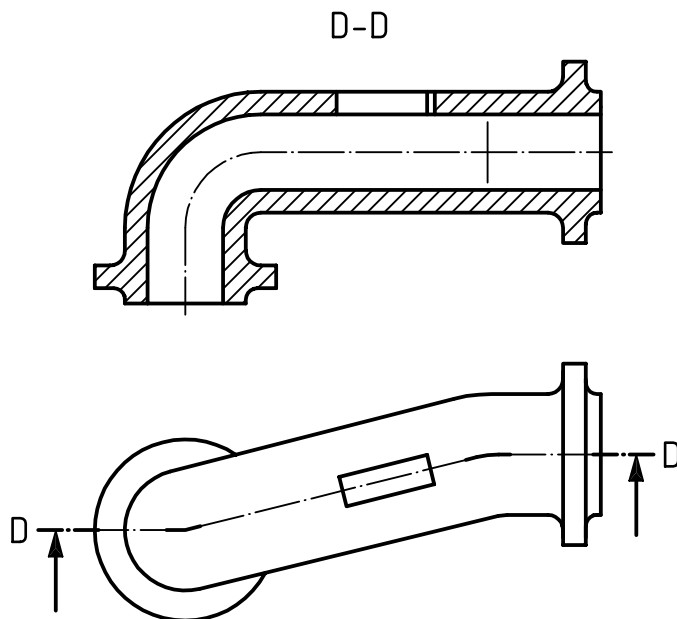


Figure 4 — Section in three contiguous planes

A section in two intersecting planes, one revolved into the plane of projection, is shown in Figure 5.

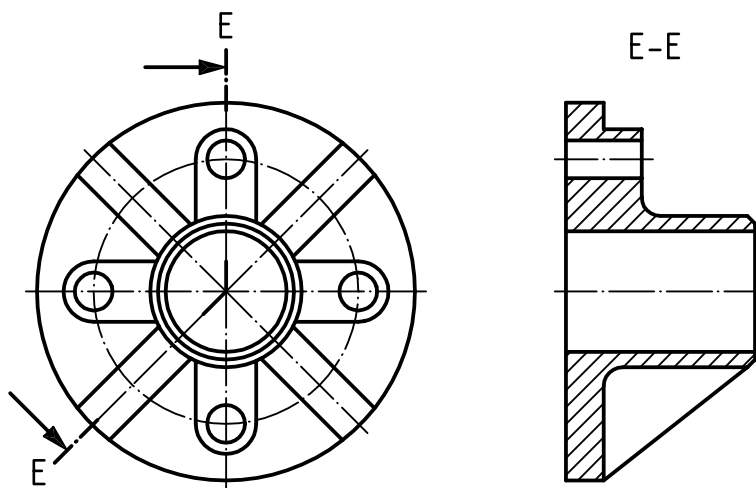


Figure 5 — Section in two intersecting planes

In the case of parts of a revolution containing regularly spaced details required to be shown in sections but not situated in the cutting plane, these details may be depicted rotated into the cutting plane, provided that no ambiguity can arise (see Figure 6). No additional identification is needed.

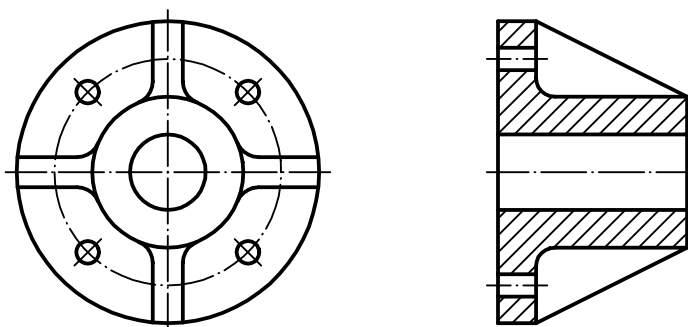


Figure 6 — Section of part of revolution with regularly spaced details not in, but rotated into, the cutting plane

When it is sometimes necessary to position the cutting plane partly outside the object, it is not, however, necessary to show the long-dashed dotted narrow line of type 04.1 specified in ISO 128-24:1999 (see Figure 7).

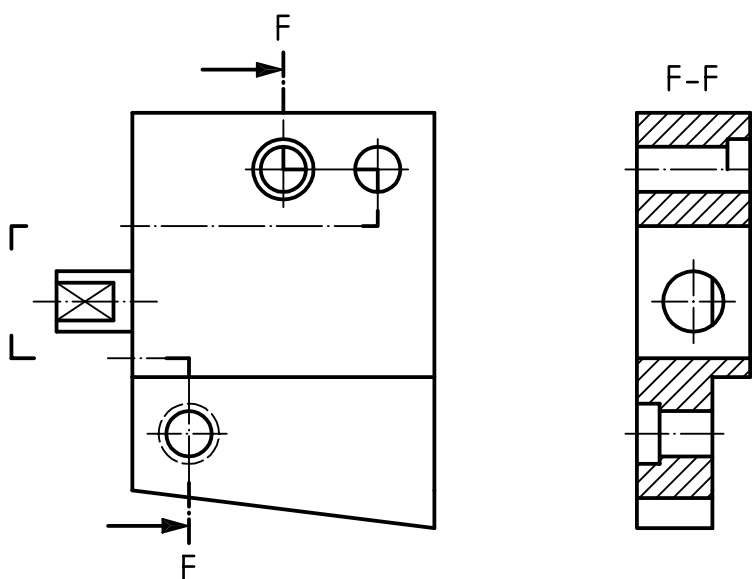


Figure 7 — Cutting plane positioned partly outside object

6 Removed sections

When sections are removed from a view, they shall be placed near that view and connected to it by the long-dashed dotted narrow line of type 04.1 specified in ISO 128-24:1999 (see Figure 8).

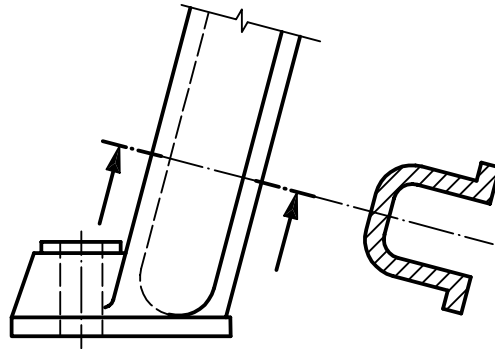


Figure 8 — Section removed from a view

7 Other sections

For sections revolved in the relevant view, as well as for sections of symmetrical parts and local sections: according to ISO 128-40.

8 Arrangement of successive sections

Successive sections may be arranged in a manner similar to the examples shown in Figures 9 to 11, in as much as it is suitable for the layout and understanding of the drawing.

Unless they contribute to the clarification of the drawing, outlines and edges behind the cutting plane may be omitted.

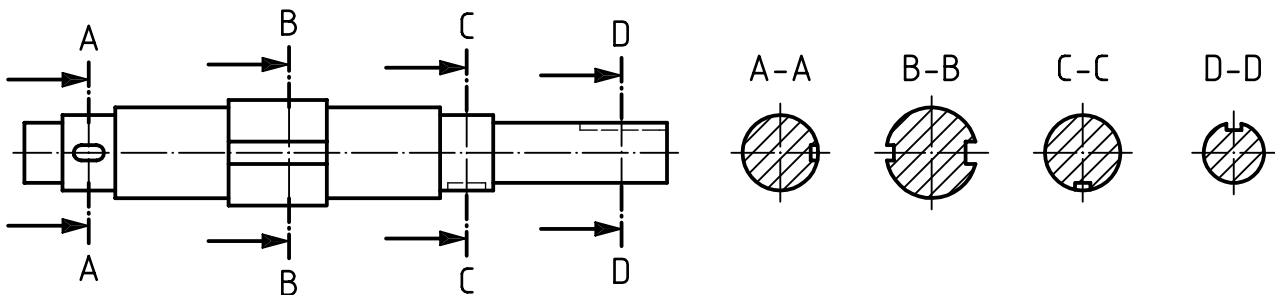


Figure 9 — Successive sections — Example 1

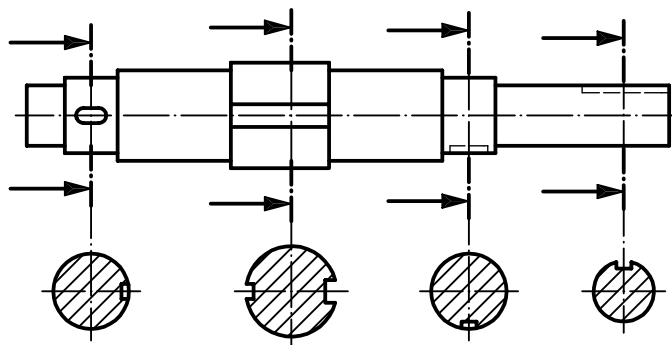


Figure 10 — Successive sections — Example 2

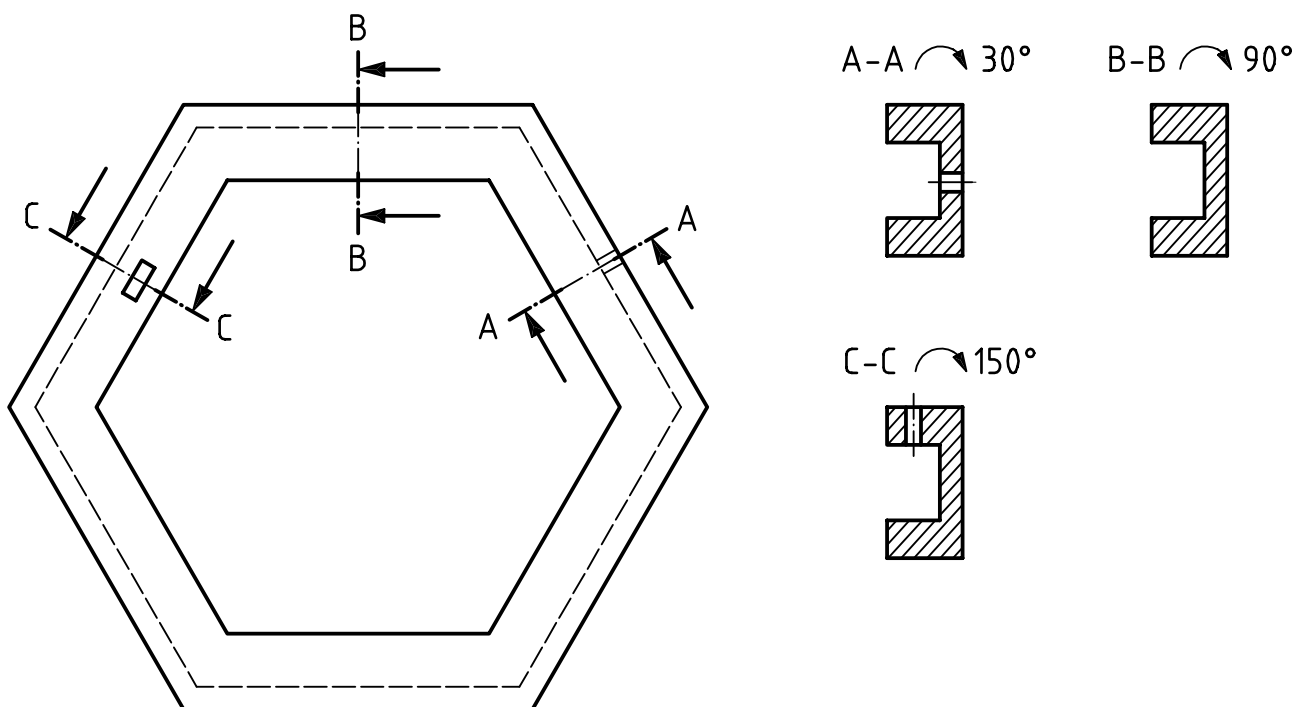


Figure 11 — Successive sections — Example 3

Bibliography

- [1] ISO 128-50, *Technical drawings — General principles of presentation — Part 50: Basic conventions for representing areas on cuts and sections.*

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