INTERNATIONAL STANDARD

ISO 6413

Second edition
2018-09

Technical product documentation — Representation of splines and serrations

Documentation technique de produits — Représentation des cannelures et des dentelures

Reference number
ISO 6413:2018(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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 6, *Mechanical engineering documentation*.

This second edition cancels and replaces the first edition (ISO 6413:1988), which has been technically revised. The following changes have been made:

— title changed from *Technical drawings — Representation of splines and serrations* to *Technical product documentation — Representation of splines and serrations*;

— Introduction added;

— normative references reviewed;

— figures improved and titles added.

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

The representations of splines in technical product documentation are different from those used in mechanical drawings. In mechanical drawings, the drawings of spline teeth are complicated.

This document improves the efficiency of drawing.

Technical product documentation — Representation of splines and serrations

1 Scope

This document specifies the rules and graphical symbols for the representations of splines and serrations in technical product documentation.

Two methods of representation are specified:

a) complete representation;

b) simplified representation.

The rules and graphical symbols specified in this document are applicable to detail drawings of parts (shafts and hubs) and to assembly drawings of joints.

NOTE For uniformity, all the figures in this document have been drawn in the first-angle orthographic projection. A third-angle orthographic projection could equally have been used without prejudice to principles established.

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 128-24:2014, *Technical drawings — General principles of presentation — Part 24: Lines on mechanical engineering drawings*

ISO 3098-2, *Technical product documentation — Lettering — Part 2: Latin alphabet, numerals and marks*

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: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
spline joint
connecting, coaxial elements that transmit torque through the simultaneous engagement of equally spaced teeth situated around the periphery of a cylindrical external member with similar spaced mating spaces situated around the inner surface of the related cylindrical internal member

[SOURCE: ISO 4156-1:2005, 3.1]

3.2
involute spline
member of a spline joint having teeth or spaces that have involute flank profiles

[SOURCE: ISO 4156-1:2005, 3.2]

3.3
straight-sided spline
member of a spline joint with teeth or spaces that have straight-sided flank profiles

3.4
serration
member of a spline joint with teeth or spaces

Note 1 to entry: Serrations generally have flank profiles of 60° pressure angle.

4 Designation

4.1 Graphical symbols

The type of spline joint is indicated by graphical symbols: for the straight-sided spline as shown in Figure 1 and for the involute spline and serrations as shown in Figure 2.

Figure 1 — Straight-sided spline

Figure 2 — Involute spline and serrations

Apply the rules for the proportions and dimensions of graphical symbols as specified in Annex A.

4.2 Method for indication designation

The designation should be indicated near the feature. Always connect it to the contour of the spline joint by a leader line (see Figure 3).

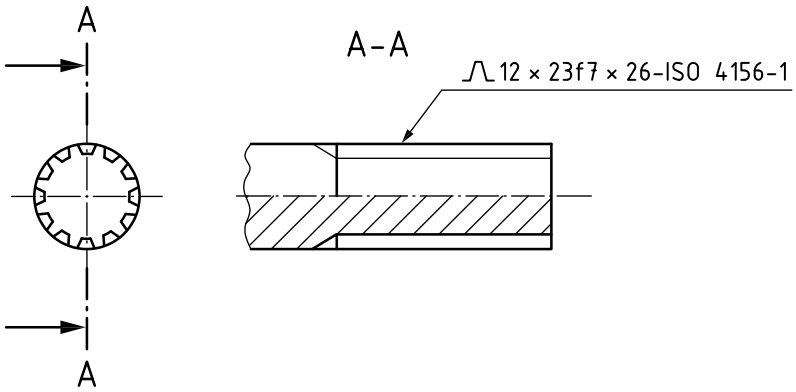

Figure 3 — Examples of indication

Where a spline joint is not in accordance with this document as mentioned above, or where the requirement is modified, the necessary data shall be tabulated on the drawing or any other associated document and shall be cross-referenced by a leader line and graphical symbol to the applicable contour.

5 Complete representation of spline joints

A complete representation of spline joints showing all details with their true dimensions is generally not necessary in technical product documentation and should be avoided.

When such a representation has to be made, the drawing rules laid down in ISO 128-24 shall be applied.

If necessary, a designation of the spline joint in accordance with Clause 4 may be added.

Figure 4 shows an example of a complete representation of a straight-sided spline joint.

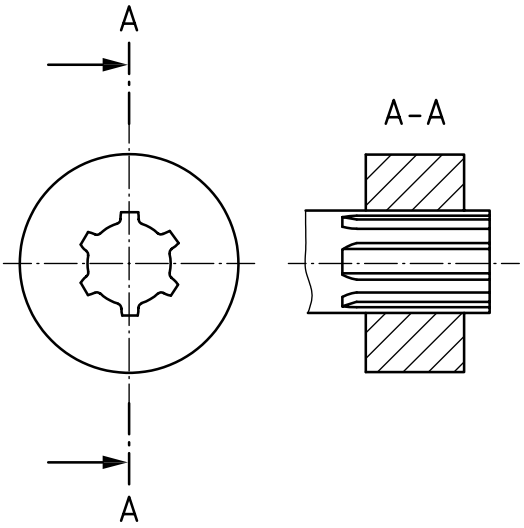

Figure 4 — Example of a complete representation of a straight-sided spline joint

Figure 5 shows an example of a complete representation of an involute spline joint.

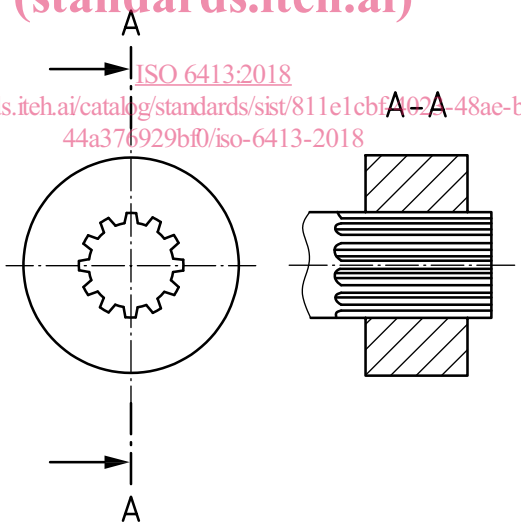

Figure 5 — Example of a complete representation of an involute spline joint

Figure 6 shows an example of a complete representation of a serration.