
**Straight cylindrical involute splines —
Metric module, side fit —**

**Part 3:
Inspection**

*Cannelures cylindriques droites à flancs en développante — Module
métrique, à centrage sur flancs —*

Partie 3: Vérification



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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 14, *Shafts for machinery and accessories*.

This second edition cancels and replaces the first edition (ISO 4156-3:2005), which has been technically revised.

The main changes compared to the previous edition includes:

- ISO/R 1938-1 has been removed from [Clause 2](#);
- ISO 268-1 and ISO 1328 (all parts) have been moved from [Clause 2](#) to Bibliography;
- symbols of length and arc length between two points, according to ISO 80000-3, have been adopted and used in the formulae;
- in [Figure 9](#), ball or pin contact diameter, internal spline has been added;
- in [Figure 12](#), measurement W , indication of base pitch, circular base thickness, and base diameter have been corrected;
- Table [10](#) has been revised;
- in [Figure 16](#), measurement of value A has been corrected;
- [Formula \(A.3\)](#) has been corrected;
- calculation results B_1 and E_r in [A.3](#) have been corrected;
- in [Figure A.2](#), the figure and subfigure titles have been corrected.

A list of all parts in the ISO 4156 series can be found on the ISO website.

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

ISO 4156 (all parts) provides the data and indications necessary for the design, manufacture and inspection of straight (non-helical) side-fitting cylindrical involute splines.

Straight cylindrical involute splines manufactured in accordance with ISO 4156 (all parts) are used for clearance, sliding and interference connections of shafts and hubs. They contain all the necessary characteristics for the assembly, transmission of torque, and economic production.

The nominal pressure angles are 30° , $37,5^\circ$ and 45° . For electronic data processing purposes, the form of expression $37,5^\circ$ has been adopted instead of $37^\circ30'$. ISO 4156 (all parts) establishes a specification based on the following modules:

— for pressure angles of 30° and $37,5^\circ$ the module increments are:

0,5; 0,75; 1; 1,25; 1,5; 1,75; 2; 2,5; 3; 4; 5; 6; 8; 10;

— for pressure angle of 45° the module increments are:

0,25; 0,5; 0,75; 1; 1,25; 1,5; 1,75; 2; 2,5.

Straight cylindrical involute splines — Metric module, side fit —

Part 3: Inspection

1 Scope

This document provides data, guidance and requirements for the inspection of straight (non-helical) side fitting cylindrical involute splines.

Limiting dimensions, tolerances, manufacturing deviations and their effects on the fit between connecting coaxial spline elements are defined and tabulated. Linear dimensions are expressed in millimetres and angular dimensions in degrees.

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 3, *Preferred numbers — Series of preferred numbers*

ISO 1101, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 1938-1, *Geometrical product specifications (GPS) — Dimensional measuring equipment — Part 1: Plain limit gauges of linear size*

ISO 4156-1, *Straight cylindrical involute splines — Metric module, side fit — Part 1: Generalities*

ISO 4156-2, *Straight cylindrical involute splines — Metric module, side fit — Part 2: Dimensions*

ISO 5459, *Geometrical product specifications (GPS) — Geometrical tolerancing — Datums and datum systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4156-1 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/>

4 Symbols and abbreviated terms

NOTE Some of the symbols used can have a meaning other than the one intended here. The symbols H, Z, Y and W are common for gauge tolerances in other ISO standards and can seem to conflict with symbols used in this document. However, it was not thought necessary to distinguish between them, since the context will always preclude any ambiguity.