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

**Part 1:
Generalities**

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

Partie 1: Généralités



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Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols, subscripts and abbreviated terms	7
4.1 General symbols	7
4.2 Subscripts	9
4.3 Formulae for dimensions and tolerances for all fit classes	9
5 Concept of side fit splines	12
6 Effective fit concept.....	14
7 Basic rack profiles for spline.....	22
8 Spline fit classes.....	24
9 Space width and tooth thickness tolerances.....	26
9.1 Total tolerance $T + \lambda$	26
9.2 Deviation allowance, λ	27
9.3 Total pitch deviation, F_p	27
9.4 Total profile deviation, F_{α}	28
9.5 Total helix deviation, F_{β}	29
9.6 Machining tolerance, T	29
9.7 Effective clearance tolerance, T_v	30
9.8 Use of effective and actual dimensions for space width and tooth thickness	30
10 Minor and major diameters	31
10.1 Tolerances	31
10.2 Adjustment to minor diameters (D_{ie}), form diameters (D_{fe}) and major diameters (D_{ee}) of external splines.....	32
11 Manufacturing and design considerations	32
11.1 Radii	32
11.2 Profile shifts	32
11.3 Eccentricity and misalignment.....	33
12 Spline data.....	34
12.1 Basic dimensions	34
12.2 Combination of types	34
12.3 Designation	34
12.4 Drawing data	35
Annex A (informative) Drawing data example calculations	40
Bibliography	59

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 2.

The main task of technical committees is to prepare International Standards. 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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4156-1 was prepared by Technical Committee ISO/TC 14, *Shafts for machinery and accessories*.

This first edition of ISO 4156-1, together with ISO 4156-2 and ISO 4156-3, cancels and replaces ISO 4156:1981 and ISO 4156:1981/Amd 1:1992, of which it constitutes a technical revision. The values and tables are the same as in ISO 4156:1981; however, some explanations and definitions have been clarified.

ISO 4156 consists of the following parts, under the general title *Straight cylindrical involute splines — Metric module, side fit*:

- *Part 1: Generalities*
- *Part 2: Dimensions*
- *Part 3: Inspection*

Introduction

ISO 4156 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 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 $37^\circ 30'$. ISO 4156 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

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Straight cylindrical involute splines — Metric module, side fit —

Part 1: Generalities

1 Scope

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

Limiting dimensions, tolerances, manufacturing errors and their effects on the fit between connecting coaxial spline elements are defined in the equations and given in the tables. Unless otherwise specified, linear dimensions are expressed in millimetres and angular dimensions in degrees.

2 Normative references

The following referenced documents are indispensable for the application 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 286-1, *ISO system of limits and fits — Part 1: Bases of tolerances, deviations and fits*

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

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

ISO 4156-3:2005, *Straight cylindrical involute splines — Metric module, side fit — Part 3: Inspection*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

3.2

involute spline

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

3.3

internal spline

spline formed on the inner surface of a cylinder