



**SLOVENSKI STANDARD**  
**SIST ISO 4156-2:2006**  
**01-julij-2006**

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Straight cylindrical involute splines - Metric module, side fit - Part 2: Dimensions

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

**Part 2:  
Dimensions**

*Cannelures cylindriques droites à flancs en développante — Module  
métrique, à centrage sur flancs —  
Partie 2: Dimensions*

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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 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 4156-2 was prepared by Technical Committee ISO/TC 14, *Shafts for machinery and accessories*.

This first edition of ISO 4156-2, together with ISO 4156-1 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*

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## 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  $30^\circ$ ,  $37,5^\circ$  and  $45^\circ$ . For electronic data processing purposes, the form of expression  $37,5^\circ$  has been adopted instead of  $37^\circ30'$ . ISO 4156 establishes a specification based on the following modules:

— for pressure angles of  $30^\circ$  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  $45^\circ$  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 2: Dimensions

### 1 Scope

This part of ISO 4156 specifies geometry and inspection dimensions 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 and tabulated. Linear dimensions are expressed in millimetres and angular dimensions in degrees.

The specified diameters for external splines in the geometry tables and the values in the inspection dimension tables are only valid for fundamental deviation “h”.

For fundamental deviations other than “h” diameters and tooth thicknesses are calculated for external splines according to the formulae in ISO 4156-1 and inspection dimensions according to the formulae in ISO 4156-3.

### 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 4156-1:2005, *Straight cylindrical involute splines — Metric module, side fit — Part 1: Generalities*

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 terms and definitions given in ISO 4156-1 apply.

#### 4 Symbols and abbreviated terms

$D$	Pitch diameter	mm
$D_{Fe\ max}$	Maximum form diameter, external spline	mm
$D_{Fi\ min}$	Minimum form diameter, internal spline	mm
$D_{Re}$	Diameter of measuring ball or pin for external spline	mm
$D_{Ri}$	Diameter of measuring ball or pin for internal spline	mm
$D_b$	Base diameter	mm
$D_{ee\ max}$	Maximum major diameter, external spline	mm
$D_{ei\ max}$	Maximum major diameter, internal spline	mm
$D_{ie\ min}$	Minimum major diameter, external spline	mm
$D_{ii\ min}$	Minimum diameter, internal spline	mm
$E_{max}$	Maximum actual space width	mm
$E_{min}$	Minimum actual space width	mm
$E_{v\ min}$	Minimum effective space width	mm
$K_e$	Approximation factor for external spline	—
$K_i$	Approximation factor for internal spline	—
$M_{Re}$	Measurement over two balls or pins, external spline	mm
$M_{Ri}$	Measurement between two balls or pins, internal spline	mm
$S_{max}$	Maximum actual tooth thickness	mm
$S_{min}$	Minimum actual tooth thickness	mm
$S_{v\ max}$	Maximum effective tooth thickness	mm
$W$	Measurement over k teeth, external spline	mm
$z$	Number of teeth	—
$k$	Number of measured teeth	—

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