



SLOVENSKI STANDARD
SIST ISO 2538:2001

01-julij-2001

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Geometrical Product Specifications (GPS) -- Series of angles and slopes on prisms

Spécification géométrique des produits (GPS) -- Séries d'angles et d'inclinaisons de prismes

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Ta slovenski standard je istoveten z: ISO 2538:1998

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ICS:

17.040.01	Linearne in kotne meritve na splošno	Linear and angular measurements in general
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en

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INTERNATIONAL STANDARD

**ISO
2538**

Second edition
1998-09-15

Geometrical Product Specifications (GPS) — Series of angles and slopes on prisms

*Spécification géométrique des produits (GPS) — Séries d'angles et
d'inclinaisons de prismes*

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Reference number
ISO 2538:1998(E)

ISO 2538:1998(E)**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.

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.

International Standard ISO 2538 was prepared by the Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

This second edition cancels and replaces the first edition (ISO 2538:1974), of which the tables have been corrected and updated, but not technically modified.

Annexes A and B of this International Standard are for information only.

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Introduction

This International Standard is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). It influences chain links 1 and 2 of the chain of standards on angle.

For more detailed information of the relation of this International Standard to other standards and the GPS matrix model, see annex A.

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Geometrical Product Specifications (GPS) — Series of angles and slopes on prisms

1 Scope

This International Standard specifies two series of prism angles from 120° to 0° 30' and a series of prism slopes from 1:10 to 1:500, for general mechanical engineering purposes.

2 Definitions

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For the purposes of this International Standard, the following definitions apply.

2.1

prism

part of a piece which is limited by two intersecting planes

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See figure 1.

NOTE — Both planes are termed "prism planes". When these are intended for fits, they are termed "mating planes for the prism".

2.2

multiple prism

part of a piece which is limited by several pairs of intersecting planes

See figure 2.

NOTES

- 1 A double prism is limited by two pairs of intersecting planes.
- 2 When the intersection of each pair of planes is a point, the multiple prism is a pyramid (see figure 3).

2.3

wedge

prism with a small angle

2.4

slide prism

vee-block

dovetail

typical prism with a large angle

NOTE — These special prisms are used, for example, as a slideway on machine tools (see figures 4 and 5).

2.5 prism angle

β
angle at which both prism planes intersect each other

See figure 1.

NOTE — The angle between the mating surfaces for prism is called "mating angle for prism".

2.6 prism slope

S
ratio of the difference between the heights H and h in two determined cross-sections to the distance L between both cross-sections

$$S = \frac{H-h}{L} = \tan \beta$$

See figure 6.

2.7 rate of prism

C_P
ratio of the difference between the thicknesses T and t in two determined cross-sections to the distance L between both cross-sections

$$C_P = \frac{T-t}{L} = 2 \tan \frac{\beta}{2}$$

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See figure 7.

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2.8 prism edge

theoretical intersection line of both prism planes

2.9 centre plane of prism

E_M
plane passing through the prism edge which bisects the prism angle β

2.10 height of prism

height measured at a given cross-section which is parallel to the edge and perpendicular to one prism plane

See figure 6.

2.11 thickness of prism

thickness measured at a given cross-section which is parallel to the edge and perpendicular to the prism centre plane

See figure 7.

3 Values

Angle series 1 and 2 as specified in table 1 are to be used in this order of preference.

Table 2 is only to be used for special applications as mentioned in the last column.

Table 3 shows the calculated values for slope and angle respectively and rate, corresponding to each recommended prism angle and prism slope.

Table 1 — General purpose prisms

Prism angle				Prism slope <i>S</i>
Series 1		Series 2		
β	$\beta/2$	β	$\beta/2$	
120°	60°	—	—	—
90°	45°	—	—	—
—	—	75°	37° 30'	—
60°	30°	—	—	—
45°	22° 30'	—	—	—
—	—	40°	20°	—
30°	15°	—	—	—
20°	10°	—	—	—
15°	7° 30'	—	—	—
—	—	10°	5°	—
—	—	8°	4°	—
—	—	7°	3° 30'	—
—	—	6°	3°	—
—	—	—	—	1:10
5°	2° 30'	—	—	—
—	—	4°	2°	—
—	—	3°	1°	—
—	—	—	—	1:20
—	—	2°	1°	—
—	—	—	—	1:50
—	—	1°	0° 30'	—
—	—	—	—	1:100
—	—	0° 30'	0° 15'	—
—	—	—	—	1:200
—	—	—	—	1:500

Table 2 — Special purpose prisms

Prism angle		Application
β	$\beta/2$	
108°	54°	Vee-blocks
72°	36°	
50°	25°	Dovetails