



SLOVENSKI STANDARD
SIST ISO 1119:2001
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Geometrical Product Specifications (GPS) -- Series of conical tapers and taper angles

Spécification géométrique des produits (GPS) -- Série d'angles de cônes et de conicités

Ta slovenski standard je istoveten z: ISO 1119:1998

[SIST ISO 1119:2001](https://standards.iteh.ai/catalog/standards/sist/94e1b198-31a6-4fe0-8732-eafc9e0a6c09/sist-iso-1119-2001)

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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
1119

Second edition
1998-09-15

**Geometrical Product Specifications
(GPS) — Series of conical tapers and taper
angles**

*Spécification géométrique de produits (GPS) — Série d'angles de cônes et
de conicités*

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Reference number
ISO 1119:1998(E)

ISO 1119:1998(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 1119 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 1119:1975), 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 conical tapers and taper angles

1 Scope

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This International Standard gives a series of cones or conical tapers, ranging from 120° to less than 1°, or ratios from 1:0,289 to 1:500, intended for general use in mechanical engineering.

It applies only to plain conical surfaces, and excludes prismatic pieces, taper threads, bevel gears, etc.

The method of dimensioning and tolerancing conical surfaces on drawings is covered in ISO 3040.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3:1973, *Preferred numbers — Series of preferred numbers*.

ISO 3040:1990, *Technical drawings — Dimensioning and tolerancing — Cones*.

3 Definitions

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

3.1

cone angle

α

included angle between generatrices as measured in the axial plane section

3.2 rate of taper

C

ratio of the difference between the diameters of two sections to the distance between these sections

$$C = \frac{D-d}{L} = 2 \tan \frac{\alpha}{2} = \frac{1}{\frac{1}{2} \cot \frac{\alpha}{2}}$$

See figure 1.

NOTES

- 1 The rate of taper is a dimensionless quantity.
- 2 The expression $C = 1:20$ means that a diameter difference $D - d$ of 1 mm occurs in an axial distance L of 20 mm between diameters D and d and that

$$\frac{1}{2} \cot \frac{\alpha}{2} = 20$$



Figure 1

4 Values

Series 1 and 2, as specified in table 1, shall be used in this order of preference, with a view to reducing the range of tools, gauges and measuring instruments required for production of conical parts.

Table 2 shall be used only for the particular applications indicated in the last column.

These tables give calculated values for cone angle or rate of taper, to facilitate design, production, and control of conical pieces.

Table 1 — Cones for general applications

Basic value		Calculated values			Rate of taper, C
Series 1	Series 2	Cone angle, α		rad	
120°		—	—	2,094 395 10	1:0,288 675 1
90°		—	—	1,570 796 33	1:0,500 000 0
	75°	—	—	1,308 996 94	1:0,651 612 7
60°		—	—	1,047 197 55	1:0,866 025 4
45°		—	—	0,785 398 16	1:1,207 106 8
30°		—	—	0,523 598 78	1:1,866 025 4
1:3		18° 55' 28,7199"	18,924 644 42°	0,330 297 35	—
	1:4	14° 15' 0,1177"	14,250 032 70°	0,248 709 99	—
1:5		11° 25' 16,2706"	11,421 186 27°	0,199 337 30	—
	1:6	9° 31' 38,2202"	9,527 283 38°	0,166 282 46	—
	1:7	8° 10' 16,4408"	8,171 233 56°	0,142 614 93	—
	1:8	7° 9' 9,6075"	7,152 668 75°	0,124 837 62	—
1:10		5° 43' 29,3176"	5,724 810 45°	0,099 916 79	—
	1:12	4° 46' 18,7970"	4,771 888 06°	0,083 285 16	—
	1:15	3° 49' 5,8975"	3,818 304 87°	0,066 641 99	—
1:20		2° 51' 51,0925"	2,864 192 37°	0,049 989 59	—
	1:30	1° 54' 34,8570"	1,909 682 51°	0,033 330 25	—
1:50		1° 8' 45,1586"	1,145 877 40°	0,019 999 33	—
1:100		34' 22,6309"	0,572 953 02°	0,009 999 92	—
1:200		17' 11,3219"	0,286 478 30°	0,004 999 99	—
1:500		6' 52,5295"	0,114 591 52°	0,002 000 00	—

NOTE — For series 1, values from 120° to 1:3 are approximately in accordance with the R 10/2 series of preferred numbers, and values from 1:5 to 1:500 are in accordance with the R 10/3 series (see ISO 3).