

SVENSK STANDARD

SS-EN ISO 1119:2011



Fastställt/Approved: 2011-12-29
Publicerad/Published: 2012-01-25
Utgåva/Edition: 2
Språk/Language: engelska/English
ICS: 17.040.01

Geometrisk produktspecifikation (GPS) – Konvinklar och koniciteter (ISO 1119:2011)

Geometrical product specifications (GPS) – Series of conical tapers and taper angles (ISO 1119:2011)

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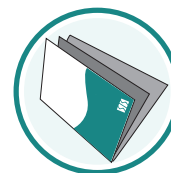
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Denna standard ersätter SS-EN ISO 1119, utgåva 1.

The European Standard EN ISO 1119:2011 has the status of a Swedish Standard. This document contains the official version of EN ISO 1119:2011.

This standard supersedes the Swedish Standard SS-EN ISO 1119, edition 1.

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EUROPEAN STANDARD

EN ISO 1119

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2011

ICS 17.040.01

Supersedes EN ISO 1119:2002

English Version

Geometrical product specifications (GPS) - Series of conical tapers and taper angles (ISO 1119:2011)

Spécification géométrique des produits (GPS) - Série d'angles de cônes et de conicités (ISO 1119:2011)

Geometrische Produktspezifikation (GPS) - Reihen von Regeln und Kegelwinkeln (ISO 1119:2011)

This European Standard was approved by CEN on 14 December 2011.

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SS-EN ISO 1119:2011 (E)

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Foreword

This document (EN ISO 1119:2011) has been prepared by Technical Committee ISO/TC 213 "Dimensional and geometrical product specifications and verification" in collaboration with Technical Committee CEN/TC 290 "Dimensional and geometrical product specification and verification" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2012, and conflicting national standards shall be withdrawn at the latest by June 2012.

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This document supersedes EN ISO 1119:2002.

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Endorsement notice

The text of ISO 1119:2011 has been approved by CEN as a EN ISO 1119:2011 without any modification.

SS-EN ISO 1119:2011 (E)

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.

The ISO/GPS Masterplan given in ISO/TR 14638 gives an overview of the ISO/GPS system of which this document is a part. The fundamental rules of ISO/GPS given in ISO 8015 apply to this document and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this document, unless otherwise indicated

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

Geometrical product specifications (GPS) — Series of conical tapers and taper angles

1 Scope

This International Standard provides calculated values for 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 technical engineering.

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

2 Normative references

The following referenced document is 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 3040, *Geometrical product specifications (GPS) — Dimensioning and tolerancing — Cones*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3040 apply.

4 Values

Series 1 and 2 initial values, as specified in Table 1, should be used in the order of preference given with the purpose of 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.

For information, these tables give calculated values for the cone angle or the rate of taper, in order to facilitate design, production and control of conical pieces.

Cones shall be dimensioned and toleranced according to ISO 3040.

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Table 1 — Cones for general applications

Nominal values					
Initial value		Calculated values			
Series 1	Series 2	Cone angle, α			Rate of taper, C
		Degrees, minutes and seconds ° ' "	Degrees °	Radians 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' 28,719 9"	18,924 644 42°	0,330 297 35	—
	1:4	14° 15' 0,117 7"	14,250 032 70°	0,248 709 99	—
1:5		11° 25' 16,270 6"	11,421 186 27°	0,199 337 30	—
	1:6	9° 31' 38,220 2"	9,527 283 38°	0,166 282 46	—
	1:7	8° 10' 16,440 8"	8,171 233 56°	0,142 614 93	—
	1:8	7° 9' 9,607 5"	7,152 668 75°	0,124 837 62	—
1:10		5° 43' 29,317 6"	5,724 810 45°	0,099 916 79	—
	1:12	4° 46' 18,797 0"	4,771 888 06°	0,083 285 16	—
	1:15	3° 49' 5,897 5"	3,818 304 87°	0,066 641 99	—
1:20		2° 51' 51,092 5"	2,864 192 37°	0,049 989 59	—
	1:30	1° 54' 34,857 0"	1,909 682 51°	0,033 330 25	—
1:50		1° 8' 45,158 6"	1,145 877 40°	0,019 999 33	—
1:100		34' 22,630 9"	0,572 953 02°	0,009 999 92	—
1:200		17' 11,321 9"	0,286 478 30°	0,004 999 99	—
1:500		6' 52,529 5"	0,114 591 52°	0,002 000 00	—

NOTE 1 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).

NOTE 2 The calculated values are for information only.

Table 2 — Selection of cones for particular application

Nominal values					International Standard number	Applications
Initial value	Calculated values			Rate of taper, C		
	Cone angle, α					
Degrees, minutes and seconds ° ' "	Degrees °	Radians rad				
7:24	16° 35' 39,444 3"	16,594 290 08°	0,289 625 00	1:3,428 571 4	ISO 297	Machine tool spindles, tool fits
11°54'	—	—	0,207 694 18	1:4,797 451 1	ISO 5237, ISO 8489-5	Cones and tubes for textile industry
8°40'	—	—	0,151 261 87	1:6,598 441 5	ISO 324 ISO 575 ISO 8489-3, ISO 8489-4,	
7°	—	—	0,122 173 05	1:8,174 927 7	ISO 8489-2	
1:9 ^a	6° 41' 34,776 9"	6,359 660 24	0,110 997 01	—	IEC 60095-2	Terminals of lead acid starter battery
1 : 9,98	5° 44' 10,550 0"	5,736 263 88°	0,100 116 69	—	ISO 12164-1	Hollow taper interface
1:12,262	4° 40' 12,151 4"	4,670 042 05°	0,081 507 61	—	ISO 239	Jacobs taper No. 2
1:12,972	4° 24' 52,903 9"	4,414 695 52°	0,077 050 97	—	ISO 239	Jacobs taper No. 1
1:15,748	3° 38' 13,442 9"	3,637 067 47°	0,063 478 80	—	ISO 239	Jacobs taper No. 33
6:100	3° 26' 12,177 6"	3,436 716 00°	0,059 982 01	1:16,666 666 7	ISO 594-1 ISO 595-1 ISO 595-2	Medical equipment
1:18,779	3° 3' 1,207 0"	3,050 335 27°	0,053 238 39	—	ISO 239	Jacobs taper No. 3
1:19,002	3° 0' 52,395 6"	3,014 554 34°	0,052 613 90	—	ISO 296	Morse taper No. 5
1:19,180	2° 59' 11,725 8"	2,986 590 50°	0,052 125 84	—	ISO 296	Morse taper No. 6
1:19,212	2° 58' 53,825 5"	2,981 618 20°	0,052 039 05	—	ISO 296	Morse taper No. 0
1:19,254	2° 58' 30,421 7"	2,975 117 13°	0,051 925 59	—	ISO 296	Morse taper No. 4
1:19,264	2° 58' 24,864 4"	2,973 573 43°	0,051 898 65	—	ISO 239	Jacobs taper No. 6
1:19,922	2° 52' 31,446 3"	2,875 401 76°	0,050 185 23	—	ISO 296	Morse taper No. 3
1:20,020	2° 51' 40,796 0"	2,861 332 23°	0,049 939 67	—	ISO 296	Morse taper No. 2