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Solid hardmetal end mills with cylindrical shank — Dimensions

Fraises cylindriques deux tailles monobloc en métaux-durs — Dimensions

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Contents

Page

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with defined cutting edges, cutting items*.

This third edition cancels and replaces the second edition (ISO 10911:2010), which has been technically revised as follows:

— Figure 1 has been revised;

— Annex A has been added, showing the relationship between designations in this document and the ISO 13399 series.

Solid hardmetal end mills with cylindrical shank — Dimensions

1 Scope

This document specifies the dimensions of solid hardmetal end mills with cylindrical shank.

NOTE For the relationship between designations in this document and the ISO 13399 series, see Annex A.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Dimensions

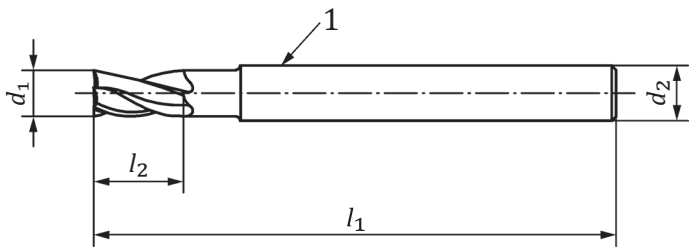
The dimensions of solid hardmetal end mills with plain cylindrical shanks are specified in Figure 1 and Table 1.

NOTE The dimensions given in Table 1 also apply to solid hardmetal end mills with flatted cylindrical shanks in accordance with ISO 3338-2.

5 Centre cutting

End mills with two flutes shall be centre-cutting (slot drills).

End mills with three flutes or more may be centre-cutting.



Key

1 plain cylindrical shank in accordance with ISO 3338-1

NOTE See Table 1 for dimensions.

Figure 1 — Example of an end mill

Table 1 — Dimensions of end mills with two flutes

Dimensions in millimetres

Cutting diameter	Shank diameter[a]	Short cutting part			Long cutting part		
		Overall length	Cutting length		Overall length	Cutting length	
d_1 h10	d_2 h6	l_1[b]	l_2[c] 2 or 3 cutting edges	l_2[c] 4 cutting edges	l_1[d]	l_2 2 or 3 cutting edges	l_2 4 cutting edges
1,0	3,0	38,0	3,0	3,0	—	—	—
1,5	3,0	38,0	3,0	4,0	—	—	—
2,0	3,0	38,0	3,0	4,0	38,0	6,0	7,0
	6,0	50,0	3,0	4,0	57,0	6,0	7,0
2,5	3,0	38,0	3,0	4,0	38,0	7,0	8,0
	6,0	50,0	3,0	4,0	57,0	7,0	8,0
3,0	3,0	38,0	4,0	5,0	38,0	7,0	8,0
	6,0	50,0	4,0	5,0	57,0	7,0	8,0
3,5	6,0	50,0	4,0	6,0	57,0	7,0	10,0
4,0	6,0	54,0	5,0	8,0	57,0	8,0	11,0
4,5	6,0	54,0	5,0	8,0	57,0	8,0	11,0
5,0	6,0	54,0	6,0	9,0	57,0	10,0	13,0
6,0	6,0	54,0	7,0	10,0	57,0	10,0	13,0
7,0	8,0	58,0	8,0	11,0	63,0	13,0	16,0
8,0	8,0	58,0	9,0	12,0	63,0	16,0	19,0
9,0	10,0	66,0	10,0	13,0	72,0	16,0	19,0
10,0	10,0	66,0	11,0	14,0	72,0	19,0	22,0
12,0	12,0	73,0	12,0	16,0	83,0	22,0	26,0
14,0	14,0	75,0	14,0	18,0	83,0	22,0	26,0
16,0	16,0	82,0	16,0	22,0	92,0	26,0	32,0
18,0	18,0	84,0	18,0	24,0	92,0	26,0	32,0
20,0	20,0	92,0	20,0	26,0	104,0	32,0	38,0

[a] For the dimensions, see ISO 3338-1.

[b] Tolerance on l_1, short cutting part: $^{+2,0}_{0}$ mm.

[c] Tolerances on l_2: for $l_2 \leq 10$ mm: $^{+1,0}_{0}$ mm; for l_2 11–22 mm: $^{+1,5}_{0}$ mm; for $l_2 > 22$ mm: $^{+2,0}_{0}$ mm.

[d] Tolerance on l_1, long cutting part: $^{+2,0}_{0}$ mm.

Annex A
(informative)

Relationship between designations in this document and the ISO 13399 series

A.1 Relationship between designations

For the relationship between the designations in this document and preferred symbols according to the ISO 13399 series, see Table A.1.

Table A.1 — Relationship between designations in this document and the ISO 13399 series

Symbol in this document	Reference in this document	Property name in the ISO 13399 series	Symbol in the ISO 13399 series	Reference in the ISO 13399 series
d_1	Figure 1 Table 1	Cutting diameter	DC	71D084653E57F
d_2	Figure 1 Table 1	Connection diameter machine side	DCONMS	71EBDBF5060E6
$d_{2\,h6}$	Table 1	Tolerance class connection diameter machine side	TCDCONMS	72719B2BD8041
l_1	Figure 1 Table 1	Overall length	OAL	71D078EB7C086
l_2	Figure 1 Table 1	Depth of cut maximum	APMX	71D07576C0558

Bibliography

[1] ISO 3338-1, *Cylindrical shanks for milling cutters — Part 1: Dimensional characteristics of plain cylindrical shanks*

[2] ISO 3338-2, *Cylindrical shanks for milling cutters — Part 2: Dimensional characteristics of flatted cylindrical shanks*

