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**End mills and slot drills —**

**Part 1:  
Milling cutters with cylindrical shanks**

*Fraises cylindriques 2 tailles et fraises à rainurer —*

*Partie 1: Fraises à queue cylindrique*

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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.

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](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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For an explanation on 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](http://www.iso.org/iso/foreword.html)

The committee responsible for this document is 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 1641-1:2003), of which it constitutes a minor revision.

ISO 1641 consists of the following parts, under the general title *End mills and slot drills*:

- *Part 1: Milling cutters with cylindrical shanks*
- *Part 2: Dimensions and designation of milling cutters with Morse taper shanks*
- *Part 3: Dimensions and designation of milling cutters with 7/24 taper shanks*

# End mills and slot drills —

## Part 1: Milling cutters with cylindrical shanks

### 1 Scope

This part of ISO 1641 specifies the general dimensions of the following milling cutters with plain cylindrical, flatted cylindrical and threaded shanks:

- end mills, flat-ended or ball-nosed — standard series and long series;
- slot drills — short series and standard series.

The dimensional characteristics of cylindrical shanks are in accordance with ISO 3338-1, ISO 3338-2 and ISO 3338-3.

NOTE These same milling cutters with Morse taper shanks having a tapped hole are dealt with in ISO 1641-2, those with 7/24 taper shanks in ISO 1641-3.

This part of ISO 1641 does not apply to solid hard metal end mills and slot drills.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

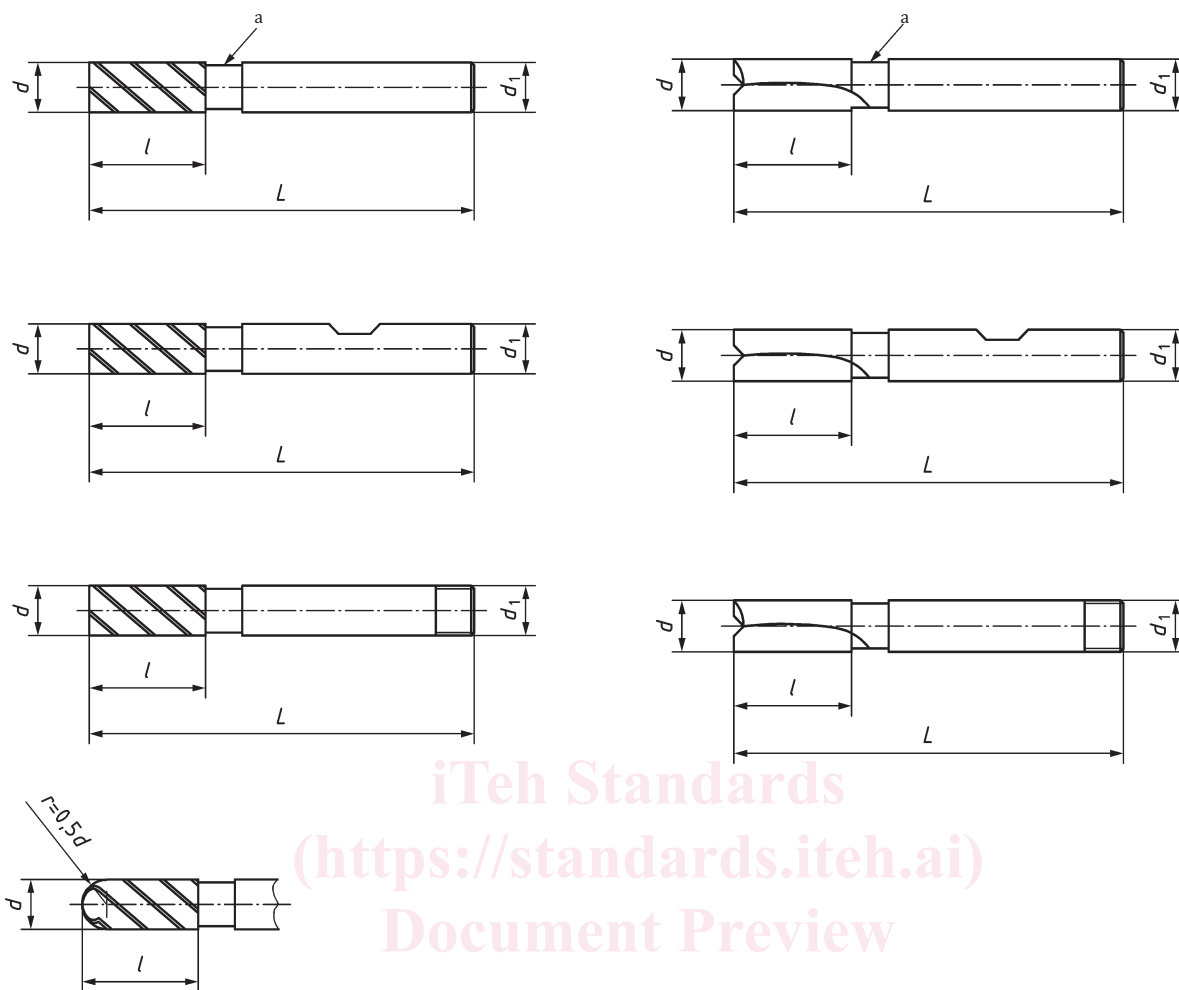
ISO 3338-3, *Cylindrical shanks for milling cutters — Part 3: Dimensional characteristics of threaded shanks*

### 3 Dimensions

For flat-ended end mills and ball-nosed cylindrical end mills, the standard series and long series given in [Table 1](#) according to the cutting length,  $l$ , shall be used.

For slot drills, the short series and standard series given in [Table 1](#) according to the cutting length,  $l$ , shall be used.

See [Figure 1](#), [Table 1](#) and [Table 2](#).



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a) End mills, flat-ended and ball-nosed b) Slot drills

a Optional recess.

Figure 1 — Milling cutters with cylindrical shanks