INTERNATIONAL STANDARD

ISO 1641-3

Second edition
2003-06-01

End mills and slot drills —

Part 3: Milling cutters with 7/24 taper shanks

Fraises cylindriques 2 tailles et fraises à rainurer —

Partie 3: Fraises à queue cône 7/24

Reference number
ISO 1641-3:2003(E)

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 1641-3 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 2, *Drills, reamers, milling cutters and milling machine accessories*.

This second edition cancels and replaces the first edition (ISO 1641-3:1978), which has technically revised, in particular by the inclusion of 7/24 taper shanks for automatic changers.

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: Milling cutters with Morse taper shanks*

— *Part 3: Milling cutters with 7/24 taper shanks*

End mills and slot drills —

Part 3:
Milling cutters with 7/24 taper shanks

1 Scope

This part of ISO 1641 specifies the general dimensions of the following milling cutters with 7/24 taper shanks:

— end mills, flat-ended or ball-nosed — standard series and long series (manual changers);

— slot drills — short series and standard series (manual changers);

— end mills, flat-ended — standard series and long series (automatic changers).

Characteristics of 7/24 taper are in accordance with ISO 297 for manual changers and ISO 7388-1 for automatic changers.

NOTE These same milling cutters with cylindrical shanks are dealt with in ISO 1641-1, and those with Morse taper shank having a tapped hole in ISO 1641-2.

2 Normative references

The following referenced documents are 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 297, *7/24 Tapers for tool shanks for manual changing*

ISO 7388-1, *Tool shanks with 7/24 taper for automatic tool changers — Part 1: Shanks Nos. 40, 45 and 50 — Dimensions*

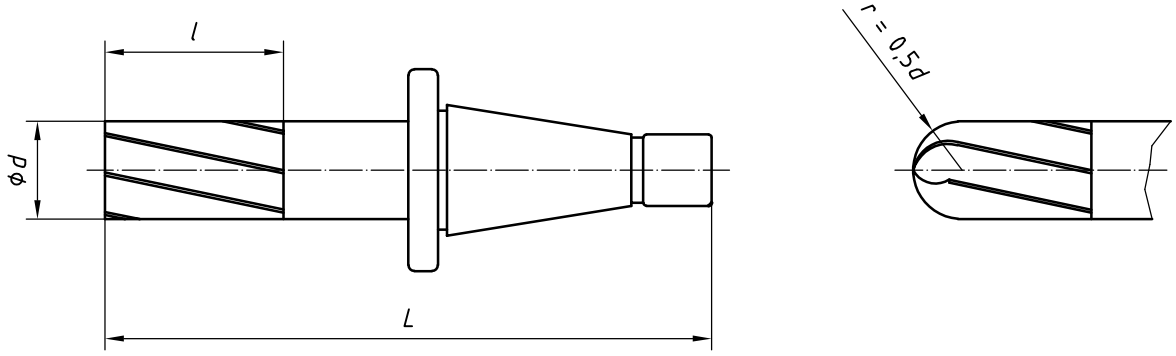
3 Dimensions

3.1 7/24 taper shanks for manual changers

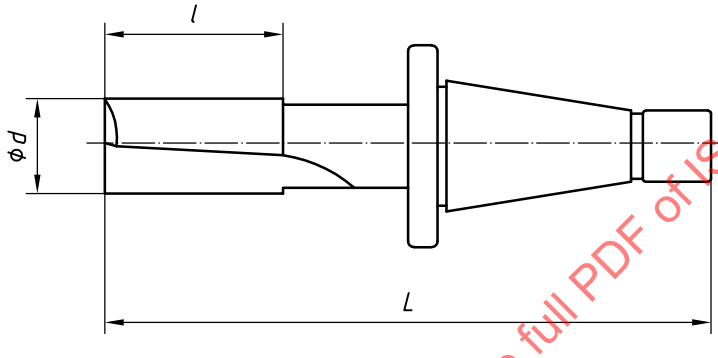
For hemispherical-ended mills and flat-ended end mills, the standard series and long series, given in Table 1, according to the cutting length, l, shall be used.

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.



a) Flat-ended and ball-nosed end mills



b) Slot drill

Figure 1 — Milling cutters with 7/24 taper shanks

Table 1

Dimensions in millimetres

Range of diameters d	Recommended diameters d		Length l			Length L			7/24 taper No.
			Short series	Normal series	Long series	Short series	Normal series	Long series	
$23,6 < d \leqslant 30$	**24** and **25**	**28**	26	45	90	131	150	195	30
$30 < d \leqslant 37,5$	**32**	**36**	32	53	106	137	158	211	
						167	188	241	40
						187	208	261	45
$37,5 < d \leqslant 47,5$	**40**	**45**	38	63	125	173	198	260	40
						193	218	280	45
						215	240	302	50
$47,5 < d \leqslant 60$	**50**	**56**	45	75	150	180	210	285	40
						200	230	305	45
						222	252	327	50
$60 < d \leqslant 75$	**63**	**71**	53	90	180	208	245	335	45
						230	267	357	50
$75 < d \leqslant 95$	**80**	—	63	106	212	240	283	389	

The values L and l have been so chosen that the length difference ($L - l$) remains constant whatever the series, short, standard or long (see Table 2).

Table 2

Dimensions in millimetres

7/24 taper No.	30	40	45	50
$L - l$	105	135	155	177

3.2 7/24 taper shanks for automatic changers

For flat-ended end mills, the standard series and long series, given in Table 3, according to the cutting length, l, shall be used.

See Figure 2, Table 3 and Table 4.

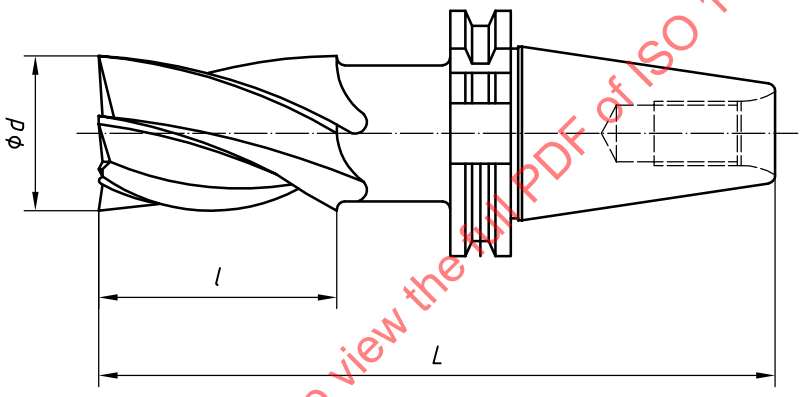


Figure 2 — Milling cutters with 7/24 taper shanks for automatic changers

Table 3

Dimensions in millimetres

Range of diameters d	**Recommended diameters** d		**Length** l		**Length** L		**7/24 taper No.**
			Normal series	Long series	Normal series	Long series	
$30 < d \leqslant 37{,}5$	**32**	**36**	53	106	171	224	40
$37{,}5 < d \leqslant 47{,}5$	**40**	**45**	63	125	181	243	40
					219	281	50
$47{,}5 < d \leqslant 60$	**50**	**56**	75	150	193	268	40
					231	306	50
$60 < d \leqslant 75$	**63**	**71**	90	180	246	336	50
$75 < d \leqslant 85$	**80**	—	106	212	262	368	50

The values L and l have been so chosen that the length difference $(L - l)$ remains constant whatever the series, short, standard or long (see Table 4).

Table 4

Dimensions in millimetres

Cone 7/24 No.	40	50
$L - l$	118	156

4 Tolerances

Tolerances on cutting diameters, d, shall be as follows:

— js 14 for end mills;

— e8 for slot drills.