INTERNATIONAL STANDARD ISO 1641/II

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

End mills and slot drills — Part II : Milling cutters with Morse taper shanks

Fraises cylindriques 2 tailles et fraises à rainurer — Partie II : Fraises à queue cône Morse

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Descriptors : tools, power-operated tools, milling cutters, end mills, slot drills, taper shanks, Morse taper shanks, specifications, dimensions.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 1641/II was developed by Technical Committee ISO/TC 29, *Small tools*, and was circulated to the member bodies in June 1977.

It has been approved by the member bodies of the following countries :

Australia	India	South Africa, Rep. of
Austria	Israel	Spain
Belgium	Italy	Sweden
Brazil	Japan	Switzerland
Chile	Korea, Rep. of	Turkey
France	Mexico	United Kingdom
Germany	Poland	U.S.S.R.
Hungary	Romania	Yugoslavia

The member body of the following country expressed disapproval of the document on technical grounds :

Czechoslovakia

This International Standard together with International Standard ISO 1641/I cancels and replaces ISO Recommendation R 1641-1970.

Printed in Switzerland

End mills and slot drills — Part II : Milling cutters with Morse taper shanks

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the general dimensions of the following milling cutters with Morse taper shanks having a tapped hole :

— End mills, flat-ended or ball-nosed — Standard series and long series.

— Slot drills — Short series and standard series.

Characteristics of Morse taper shanks are in accordance with ISO 296 and ISO 5413.

These same milling cutters with parallel shanks are dealt with in part I; those with 7/24 taper shanks, in part III.

2 REFERENCES

ISO 296, *Self-holding tapers for tool shanks.*

ISO 523, *Milling cutters — Recommended range of outside diameters.*

ISO 3855, *Milling cutters — Nomenclature.*

ISO 5413, *Machine tools — Positive drive of Morse tapers.*

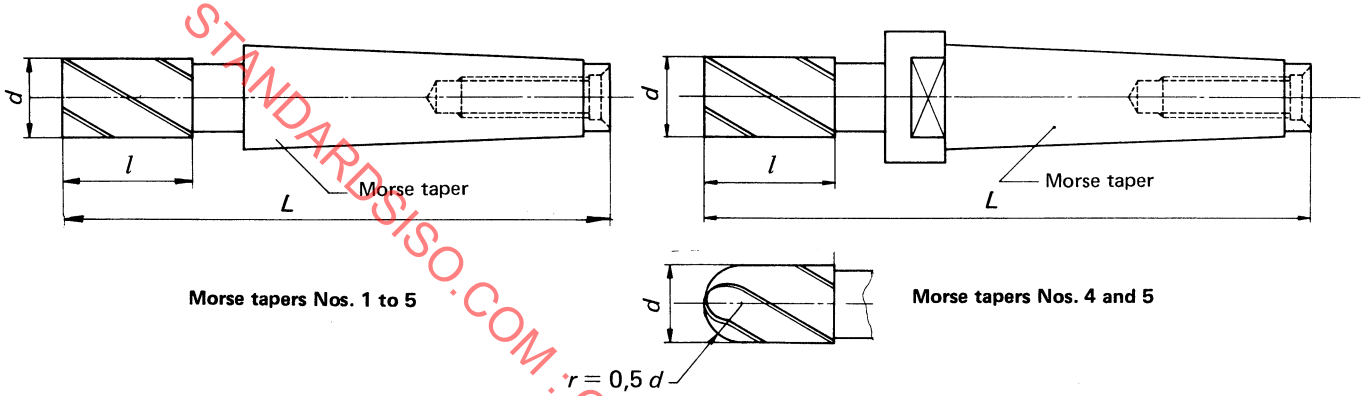
3 DIMENSIONS

Flat-ended end mills and ball-nosed parallel-end mills

Two series : standard and long according to the cutting length l.

Slot drills

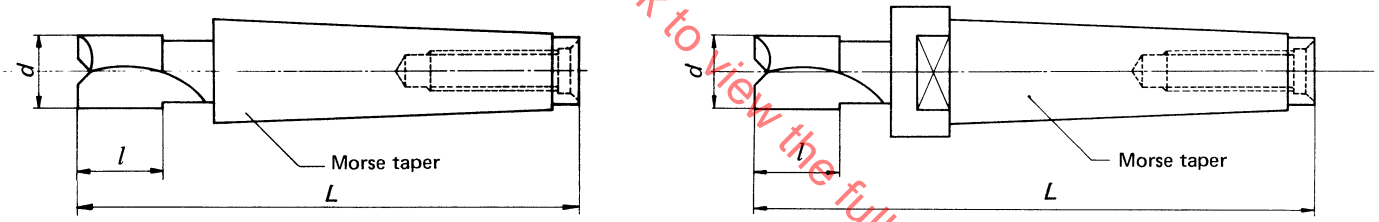
Two series : short series and standard series according to the cutting length l.



Morse tapers Nos. 1 to 5

Morse tapers Nos. 4 and 5

End mills



Morse tapers Nos. 1 to 5

Morse tapers Nos. 4 and 5

Slot drills

Designation : Milling cutters are designated by their type and their cutting diameter *d*.

Tolerances on cutting diameters *d* :

End mills : j_s14

Slot drills : e8

Dimensions in millimetres

Ranges of diameters d		Recommended diameters d		Length l			Length L[1]						Morse taper No.
							Short series		Standard series		Long series		
over (excluded)	up to (included)			Short series	Standard series	Long series	Alternative I	Alternative II	Alternative I	Alternative II	Alternative I	Alternative II	
5	6	**6**	–	8	13	24	78		83		94		**1**
6	7,5	–	**7**	10	16	30	80		86		100		
7,5	**9,5**	**8**	9	11	19	38	81		89		108		
9,5	11,8	**10**	**11**	13	22	45	83		92		115		
11,8	15	**12**	**14**	16	26	53	86		96		123		
							101		111		138		**2**
15	19	**16**	**18**	19	32	63	104		117		148		
19	23,6	**20**	**22**	22	38	75	107		123		160		
							124		140		177		**3**
23,6	30	**25**	**28**	26	45	90	128		147		192		
30	37,5	**32**	**36**	32	53	106	134		155		208		
							157	180	178	201	231	254	**4**
37,5	47,5	**40**	**45**	38	63	125	163	186	188	211	250	273	
							196	224	221	249	283	311	**5**
47,5	60	**50**	**56**	45	75	150	170	193	200	223	275	298	**4**
							203	231	233	261	308	336	**5**
60	75	**63**	–	53	90	180	211	239	248	276	338	366	

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

Morse taper No.	1	2	3	4		5	
				Alternative I	Alternative II	Alternative I	Alternative II
$L - l$	70	85	102	125	148	158	186

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