INTERNATIONAL STANDARD

ISO
3937-1

Cutter arbors with tenon drive —

Part 1:
Dimensions of Morse taper

Mandrins porte-fraise à entraînement par tenons —

Partie 1: Dimensions des cônes Morse

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Foreword

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ISO 3937-1 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 2, *High speed steel cutting tools and their attachments*.

This first edition of ISO 3937-1, together with ISO 3937-2, cancels and replaces ISO 3937:1985, which has been technically revised.

ISO 3937 consists of the following parts, under the general title *Cutter arbors with tenon drive*:

— *Part 1: Dimensions of Morse taper*

— *Part 2: Dimensions of 7/24 taper*

— *Part 3: Dimensions of hollow taper interface with flange contact surface*

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Cutter arbors with tenon drive —

Part 1:
Dimensions of Morse taper

1 Scope

This part of ISO 3937 specifies the dimensions of cutter arbors with tenon drive and with Morse tapers.

The interchangeability dimensions of the milling cutter bearing on the cutter arbor are in conformity with ISO 2780.

The dimensions of the retaining screw used are specified in ISO 2780.

Morse tapers are in conformance with ISO 296 and ISO 5413.

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 296, *Machine tools — Self-holding tapers for tool shanks*

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 2768-2, *General tolerances — Part 2: Geometrical tolerances for features without individual tolerance indications*

ISO 2780, *Milling cutters with tenon drive — Interchangeability dimensions for cutter arbors — Metric series*

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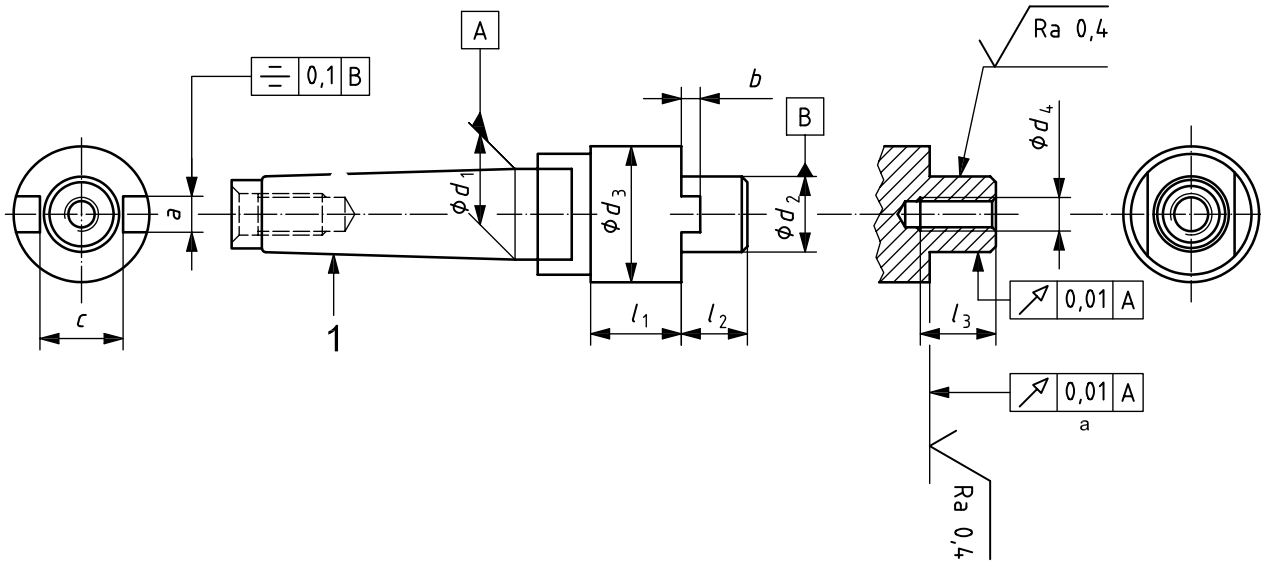
3 Dimensions

3.1 General

All dimensions and tolerances are given in millimetres. Tolerances not specified shall be of tolerance class "m" in accordance with ISO 2768-1 and of tolerance class "mk" in accordance with ISO 2768-2.

3.2   Arbors with Morse taper shanks

The dimensions of arbors with Morse taper shanks are shown in Figure 1 and given in Table 1.

Key

1   Morse taper in accordance with ISO 296 and ISO 5413

a   Not convex.

NOTE   This diagram is schematic and is not intended to specify a given design.

Figure 1 — Arbors with Morse taper shanks

Table 1 — Arbors with Morse taper shanks

Morse taper No.	d_1	d_2 h6	d_3 min.	d_4	l_1	l_2 $\begin{smallmatrix}0\\-1\end{smallmatrix}$	l_3 $\begin{smallmatrix}+2\\0\end{smallmatrix}$	a h11	b h11	c min.
2	17,78	16	32	M8	25	17	20	8	5	17
		22	40	M10	25	19	22	10	5,6	22,5
3	23,825	16	32	M8	25	17	20	8	5	17
		22	40	M10	25	19	22	10	5,6	22,5
		27	48	M12	25	21	26	12	6,3	28,5
4	31,267	16	32	M8	25	17	20	8	5	17
		22	40	M10	25	19	22	10	5,6	22,5
		27	48	M12	25	21	26	12	6,3	28,5
		32	58	M16	40	24	30	14	7	33,5
		40	70	M20	40	27	34	16	8	44,5
5	44,399	22	40	M10	40	19	22	10	5,6	22,5
		27	48	M12	40	21	26	12	6,3	28,5
		32	58	M16	40	24	30	14	7	33,5
		40	70	M20	40	27	34	16	8	44,5
		50	90	M24	40	30	40	18	9	55

4   Material

The material is left to the manufacturer's discretion, but the tensile strength shall be at least 800 N/mm^2.

Hardness shall be 56 (+4) HRC.

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Bibliography

[1]   ISO 8015, *Technical drawings — Fundamental tolerancing principle*

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