
Cutter arbors with tenon drive —

Part 3:

**Dimensions of hollow taper interface with
flange contact surface**

Mandrins porte-fraise à entraînement par tenons —

Partie 3: Dimensions des interfaces à cône creux-face

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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 3937-3 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 2, *High speed steel cutting tools and their attachments*.

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 3: Dimensions of hollow taper interface with flange contact surface

1 Scope

This part of ISO 3937 specifies the dimensions of cutter arbors with tenon drive and with hollow taper interface with flange contact surface (HSK). It also specifies the dimensions of cutter arbors with tenon drive and enlarged contact surface of the cutters.

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.

The hollow taper interface with flange contact surface is in conformance with ISO 12164-1.

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

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

ISO 12164-1, *Hollow taper interface with flange contact surface — Part 1: Shanks — Dimensions*

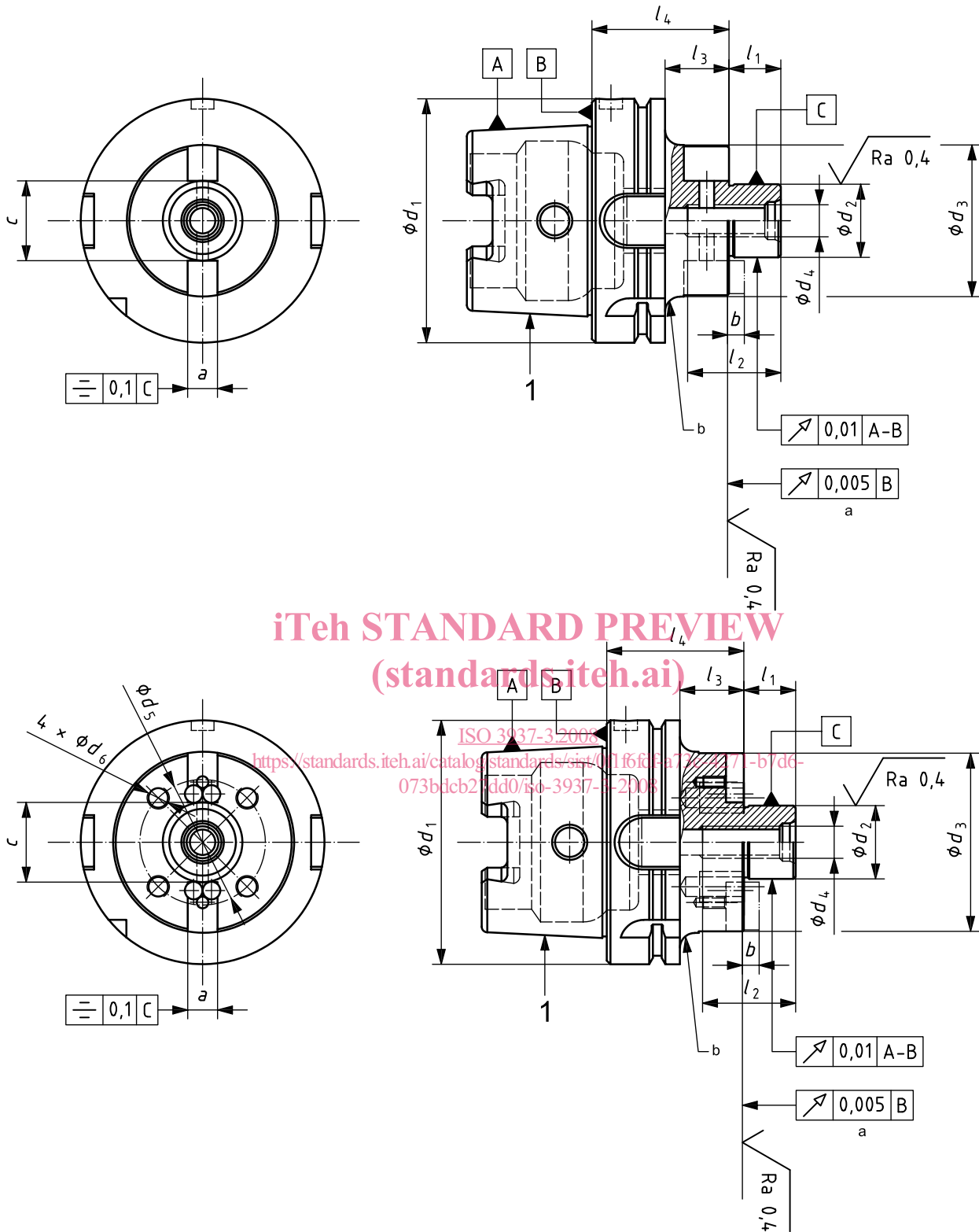
3 Dimensions

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.

3.2 Regular contact surface arbors with hollow taper interface with flange contact surface

The dimensions of arbors with regular contact surface arbors with hollow taper interface with flange contact surface are shown in Figure 1 and given in Table 1.



Key

- 1 hollow taper interface with flange contact surface in accordance with ISO 12164-1, Style A
- a Not convex.
- b If required, undercut in accordance with ISO 12164-1.

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

Figure 1 — Arbors with hollow taper interface with flange contact surface

Table 1 — Regular contact surface arbors with hollow taper interface with flange contact surface

| HSK | d_1 | d_2 | d_3 | d_4 | l_1 | l_2 | l_3^a | l_4 | a | b | c |
|-----|-------|-------|-------|-------|---------------------------------------|-------|---------|-------|-----|-----|------|
| | | h6 | min. | | $\begin{matrix} 0 \\ -1 \end{matrix}$ | min. | | | h11 | h11 | min. |
| 32 | 32 | 13 | 28 | M6 | 12 | 18 | 30 | 50 | 8 | 4,5 | 14 |
| | | 16 | 32 | M8 | 17 | 20 | 30 | 50 | 8 | 5 | 17 |
| 40 | 40 | 16 | 32 | M8 | 17 | 20 | 30 | 50 | 8 | 5 | 17 |
| | | 22 | 40 | M10 | 19 | 28 | 30 | 50 | 10 | 5,6 | 24,5 |
| 50 | 50 | 16 | 32 | M8 | 17 | 20 | 14 | 40 | 8 | 5 | 17 |
| | | 22 | 40 | M10 | 19 | 28 | 19 | 45 | 10 | 5,6 | 24,5 |
| | | 27 | 48 | M12 | 21 | 32 | 34 | 60 | 12 | 6,3 | 30,5 |
| 63 | 63 | 16 | 32 | M8 | 17 | 20 | 24 | 50 | 8 | 5 | 17 |
| | | 22 | 40 | M10 | 19 | 28 | 24 | 50 | 10 | 5,6 | 24,5 |
| | | 27 | 48 | M12 | 21 | 32 | 34 | 60 | 12 | 6,3 | 30,5 |
| | | 32 | 58 | M16 | 24 | 36 | 34 | 60 | 14 | 7 | 33,5 |
| | | 40 | 70 | M20 | 27 | 45 | 34 | 60 | 16 | 8 | 44,5 |
| 80 | 80 | 16 | 32 | M8 | 17 | 20 | 24 | 50 | 8 | 5 | 17 |
| | | 22 | 40 | M10 | 19 | 28 | 24 | 50 | 10 | 5,6 | 24,5 |
| | | 27 | 48 | M12 | 21 | 32 | 24 | 50 | 12 | 6,3 | 30,5 |
| | | 32 | 58 | M16 | 24 | 36 | 34 | 60 | 14 | 7 | 33,5 |
| | | 40 | 70 | M20 | 27 | 45 | 34 | 60 | 16 | 8 | 44,5 |
| 100 | 100 | 16 | 32 | M8 | 17 | 20 | 21 | 50 | 8 | 5 | 17 |
| | | 22 | 40 | M10 | 19 | 28 | 21 | 50 | 10 | 5,6 | 24,5 |
| | | 27 | 48 | M12 | 21 | 32 | 21 | 50 | 12 | 6,3 | 30,5 |
| | | 32 | 58 | M16 | 24 | 36 | 21 | 50 | 14 | 7 | 33,5 |
| | | 40 | 70 | M20 | 27 | 45 | 31 | 60 | 16 | 8 | 44,5 |
| | | 50 | 90 | M24 | 30 | 50 | 41 | 70 | 18 | 9 | 55 |
| | | 60 | 110 | M30 | 40 | 63 | 46 | 75 | 20 | 10 | 65 |

^a Values given only for information.

3.3 Enlarged contact surface arbors with hollow taper interface with flange contact surface

The dimensions of enlarged contact surface arbors with hollow taper interface with flange contact surface are shown in Figure 1 and given in Table 2:

Table 2 — Enlarged contact surface arbors with hollow taper interface with flange contact surface

| HSK | d_1 | d_2 | d_3 | d_4 | d_5 | d_6 | l_1 | l_2 | l_3^a | l_4 | a | b | c |
|-----|-------|-------|-------|-------|-------|-------|---------------------------------------|-------|---------|-------|-----|-----|------|
| | | h6 | min. | | | | $\begin{matrix} 0 \\ -1 \end{matrix}$ | min. | | | h11 | h11 | min. |
| 40 | 40 | 16 | 38 | M8 | — | — | 17 | 20 | 30 | 50 | 8 | 5 | 17 |
| | | 22 | 48 | M10 | — | — | 19 | 28 | 30 | 50 | 10 | 5,6 | 24,5 |
| | | 27 | 60 | M12 | — | — | 21 | 32 | 34 | 60 | 12 | 6,3 | 30,5 |
| 50 | 50 | 16 | 38 | M8 | — | — | 17 | 20 | 14 | 40 | 8 | 5 | 17 |
| | | 22 | 48 | M10 | — | — | 19 | 28 | 19 | 45 | 10 | 5,6 | 24,5 |
| | | 27 | 60 | M12 | — | — | 21 | 32 | 34 | 60 | 12 | 6,3 | 30,5 |
| | | 32 | 78 | M16 | — | — | 24 | 36 | 34 | 60 | 14 | 7 | 33,5 |
| 63 | 63 | 16 | 38 | M8 | — | — | 17 | 20 | 24 | 50 | 8 | 5 | 17 |
| | | 22 | 48 | M10 | — | — | 19 | 28 | 24 | 50 | 10 | 5,6 | 24,5 |
| | | 27 | 60 | M12 | — | — | 21 | 32 | 34 | 60 | 12 | 6,3 | 30,5 |
| | | 32 | 78 | M16 | — | — | 24 | 36 | 34 | 60 | 14 | 7 | 33,5 |
| | | 40 | 89 | M20 | 66,7 | M12 | 27 | 45 | 34 | 60 | 16 | 8 | 44,5 |
| 80 | 80 | 16 | 38 | M8 | — | — | 17 | 20 | 14 | 40 | 8 | 5 | 17 |
| | | 22 | 48 | M10 | — | — | 19 | 28 | 24 | 50 | 10 | 5,6 | 24,5 |
| | | 27 | 60 | M12 | — | — | 21 | 32 | 24 | 50 | 12 | 6,3 | 30,5 |
| | | 32 | 78 | M16 | — | — | 24 | 36 | 34 | 60 | 14 | 7 | 33,5 |
| | | 40 | 89 | M20 | 66,7 | M12 | 27 | 45 | 34 | 60 | 16 | 8 | 44,5 |
| 100 | 100 | 16 | 38 | M8 | — | — | 17 | 20 | 14 | 40 | 8 | 5 | 17 |
| | | 22 | 48 | M10 | — | — | 19 | 28 | 21 | 50 | 10 | 5,6 | 24,5 |
| | | 27 | 60 | M12 | — | — | 21 | 32 | 21 | 50 | 12 | 6,3 | 30,5 |
| | | 32 | 78 | M16 | — | — | 24 | 36 | 21 | 50 | 14 | 7 | 33,5 |
| | | 40 | 89 | M20 | 66,7 | M12 | 27 | 45 | 31 | 60 | 16 | 8 | 44,5 |
| | | 50 | 120 | M24 | — | — | 30 | 50 | 41 | 70 | 18 | 9 | 55 |
| | | 60 | 130 | M30 | 101,6 | M16 | 40 | 63 | 46 | 75 | 20 | 10 | 65 |

^a Values given only for information.

4 Material

The material is left to the manufacturer's discretion, but the tensile strength shall be at least 800 N/mm².

Hardness shall be 56 (+4) HRC.

Bibliography

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

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