
Tool holders with cylindrical shank —

Part 1:

**Cylindrical shank, location bore — Technical
delivery conditions**

*Porte-outil à queue cylindrique —
Partie 1: Queue cylindrique, alésage de réception — Conditions techniques
de livraison*

STANDARD PREVIEW
(standards.iteh.ai)

ISO 10889-1:1997

<https://standards.iteh.ai/catalog/standards/sist/dec64e7d-7a52-4276-813d-8c3ebbb48ca/iso-10889-1-1997>



Small tools.

ISO 10889 consists of the following parts, under the general title *Tool holders with cylindrical shank*:

- *Part 1: Cylindrical shank, location bore — Technical delivery conditions*
- *Part 2: Type A, shanks for tool holders of special designs*
- *Part 3: Type B with rectangular radial seat*
- *Part 4: Type C with rectangular axial seat*
- *Part 5: Type D with more than one rectangular seat*
- *Part 6: Type E with cylindrical seat*
- *Part 7: Type F with taper seat*
- *Part 8: Type Z, accessories*

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Tool holders with cylindrical shank —

Part 1:

Cylindrical shank, location bore — Technical delivery conditions

1 Scope

ISO 10889 applies to tool holders with cylindrical shank for machine tools with non-rotating tools, preferably for turning machines.

This part of ISO 10889 specifies the interchangeability dimensions of the cylindrical shank and location bore, and the dimensions related to data medium. It also specifies the technical delivery conditions of the tool holders.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10889. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10889 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1629:1995, *Rubber and latices — Nomenclature*.

ISO 2768-1:1989, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*.

3 Cylindrical shank

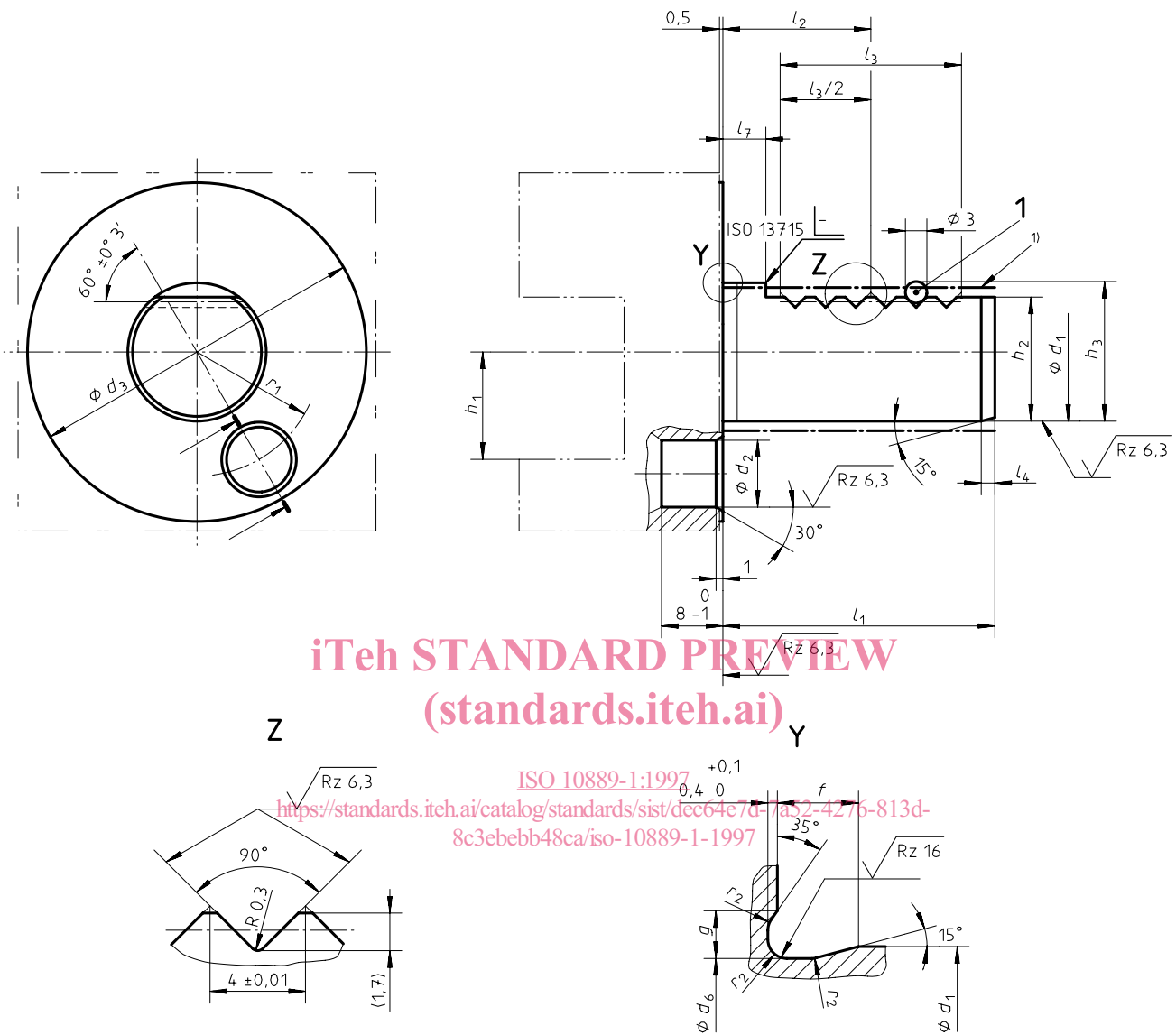
3.1 Dimensions

The dimensions of cylindrical shank are shown in figure 1 and given in table 1; the geometrical tolerances are shown in figure 2.

Unspecified details shall be chosen appropriately.

General tolerances: ISO 2768-1 - m

Dimensions in millimetres,
surface roughness in micrometres



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Key

1 Measuring roll, tolerance ± 0.01 mm

1) See 6.3.2.

Figure 1 — Cylindrical shank of tool holder

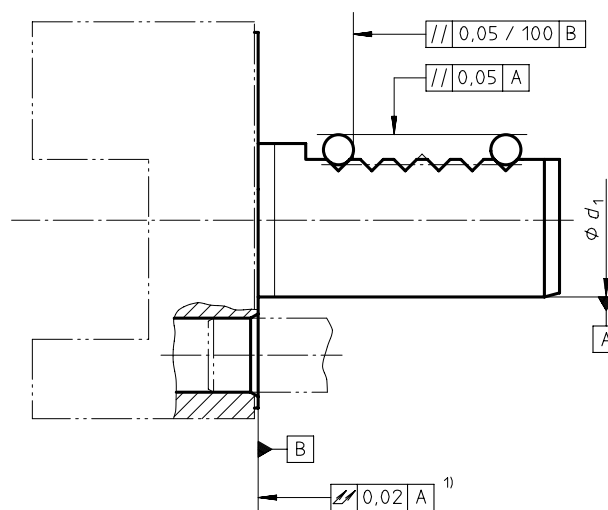
Table 1 — Dimensions of cylindrical shank

Dimensions in millimetres

| d_1 | l_1 | d_2 | | d_3 | d_6 | f | g | h_1 | h_2 | h_3 | l_2 |
|-------|-----------|-------|------|-------|-----------|-----|-----|-------|-----------|-----------|------------|
| h6 | $\pm 0,3$ | nom. | tol. | | 0 -0,1 | | | max. | $\pm 0,1$ | $\pm 0,1$ | $\pm 0,05$ |
| 16 | 32 | 8 | H6 | 40 | 15,4 | 2 | 1,7 | 12 | 15 | 16,92 | 12,7 |
| 20 | 40 | 10 | | 50 | 19,1 | 2,4 | 2 | 16 | 18 | 19,92 | 21,7 |
| 25 | 48 | 10 | | 58 | 24,1 | 2,4 | 2 | 16 | 23,5 | 25,42 | 21,7 |
| 30 | 55 | 14 | H8 | 68 | 29,1 | 2,4 | 2 | 20 | 27 | 28,92 | 29,7 |
| 40 | 63 | 14 | | 83 | 38,7 | 3,7 | 2,8 | 25 | 36 | 37,92 | 29,7 |
| 50 | 78 | 16 | | 98 | 48,7 | 3,7 | 2,8 | 32 | 45 | 46,92 | 35,7 |
| 60 | 94 | 16 | | 123 | 58,7 | 4,3 | 3,7 | 32 | 55 | 56,92 | 43,7 |
| 80 | 124 | 20 | | 158 | 78,7 | 4,3 | 3,7 | 40 | 72 | 73,92 | 59,7 |

| d_1 | l_3 | l_4 | l_7 | r_1 | r_2 | O-ring |
|-------|-------|---------|-------|------------|-------|--------------|
| h6 | min. | +1 0 | | $\pm 0,02$ | | |
| 16 | 16 | 2 | 3,5 | 14,5 | 0,6 | 15 × 1,5 |
| 20 | 24 | 2 | 7 | 18 | 0,8 | 18,77 × 1,78 |
| 30 | 40 | 2 | 7 | 25 | 0,8 | 28,3 × 1,78 |
| 40 | 40 | 3 | 7 | 32 | 1,2 | 37,77 × 2,62 |
| 50 | 48 | 3 | 8 | 37 | 1,2 | 47,29 × 2,62 |
| 60 | 56 | 4 | 10 | 48 | 1,6 | 56,74 × 3,53 |
| 80 | 80 | 4 | 10 | 65 | 1,6 | 75,79 × 3,53 |

Dimensions in millimetres



1) Non convex

Figure 2 — Cylindrical shank — Geometrical tolerances

3.2 Designation

A cylindrical shank in accordance with this part of ISO 10889 shall be designated by

- a) "Cylindrical shank";
- b) reference to this part of ISO 10889, i.e. ISO 10889-1;
- c) nominal diameter, d_1 , in millimetres;
- d) nominal length, l_1 , in millimetres.

EXAMPLE

A cylindrical shank with a nominal diameter $d_1 = 40$ mm and a nominal length $l_1 = 63$ mm is designated as follows:

Cylindrical shank ISO 10889-1 - 40 × 63

4 Location bore

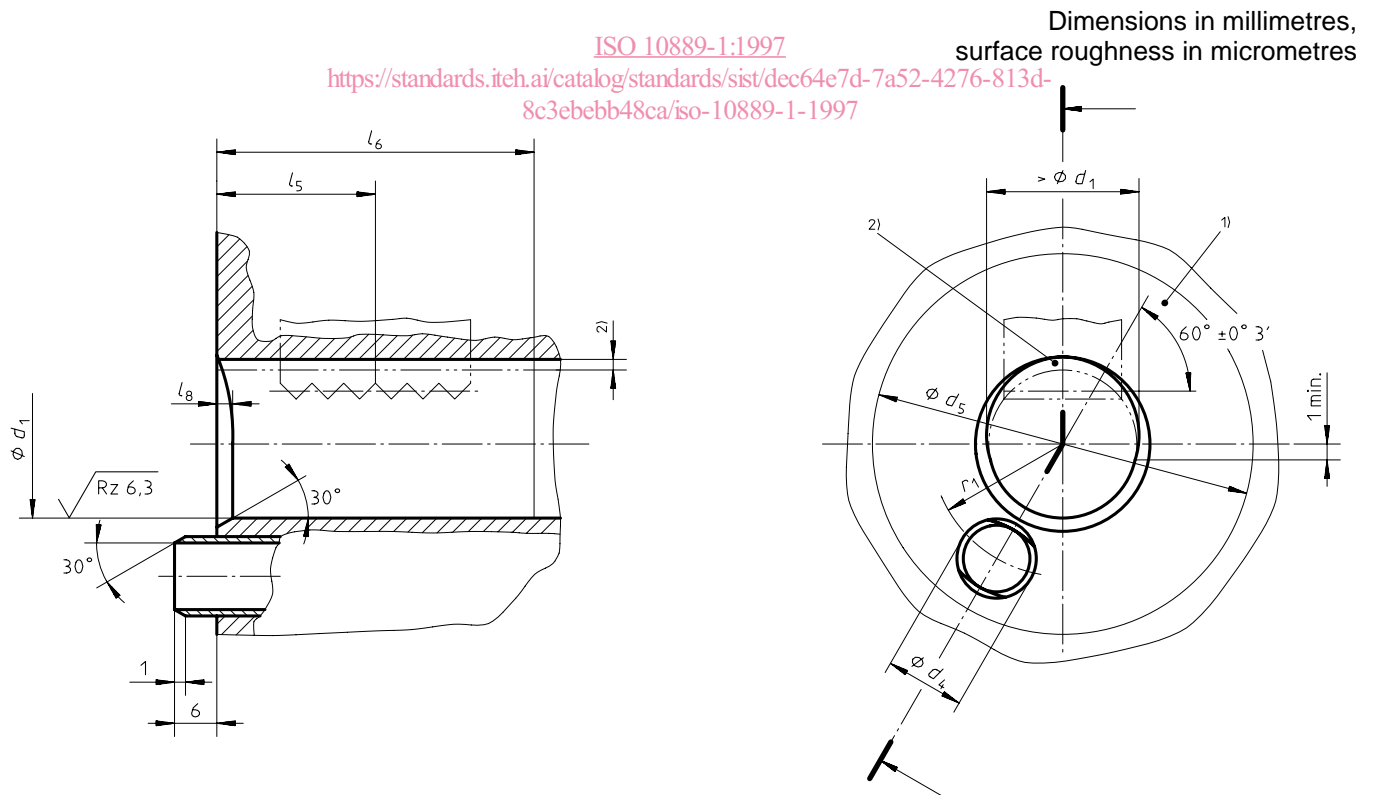
4.1 Dimensions

The dimensions of location bore are shown in figure 3 and given in table 2; the geometrical tolerances are shown in figure 4.

Unspecified details shall be chosen appropriately.

General tolerances: ISO 2768-1 - m **(standards.iteh.ai)**

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 ISO 10889-1:1997



- 1) Contact surface
- 2) Clearance

Figure 3 — Location bore

Table 2 — Dimensions of the location bore

Dimensions in millimetres

| d_1 H6 | d_4 nom. | d_4 tol. | d_5 min. | l_5 $\pm 0,05$ | l_6 | l_8 | r_1 $\pm 0,02$ |
|-------------|---------------|---------------|---------------|---------------------|-------|-------|---------------------|
| 16 | 8 | f6 | 42 | 13 | 32 | 2,1 | 14,5 |
| 20 | 10 | | 52 | 22 | 40 | 2,5 | 18 |
| 25 | 10 | | 60 | 22 | 48 | 2,5 | 21 |
| 30 | 13,95 | $\pm 0,02$ | 70 | 30 | 55 | 2,5 | 25 |
| 40 | 13,95 | | 85 | 30 | 63 | 4 | 32 |
| 50 | 15,9 | | 100 | 36 | 78 | 4 | 37 |
| 60 | 15,9 | | 125 | 44 | 94 | 6 | 48 |
| 80 | 19,9 | | 160 | 50 | 124 | 6 | 65 |

Dimensions in millimetres

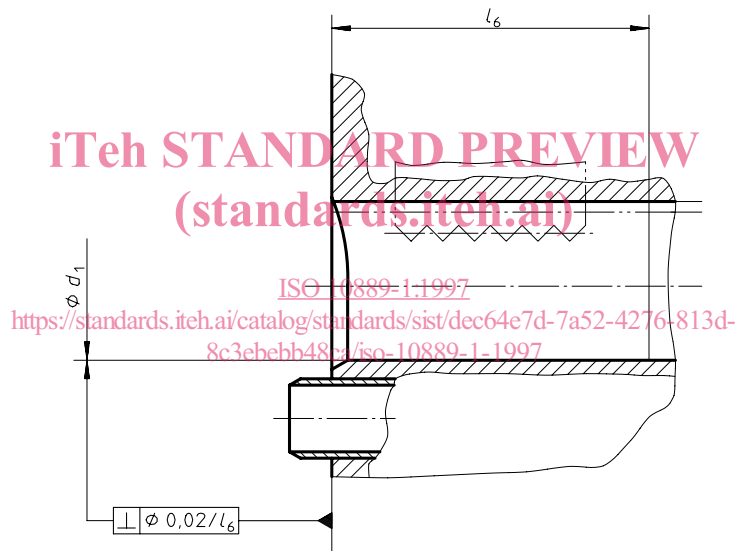


Figure 4 — Location bore — Geometrical tolerances

4.2 Designation

A location bore in accordance with this part of ISO 10889 shall be designated by

- "Location bore";
- reference to this part of ISO 10889, i.e. ISO 10889-1;
- nominal diameter.

EXAMPLE

A location bore with nominal diameter $d_1 = 40$ mm is designated as follows:

Location bore ISO 10889-1 - 40

5 Tool holder with data medium

Dimensions related to data medium are shown in figure 5 and given in tables 3 and 4.

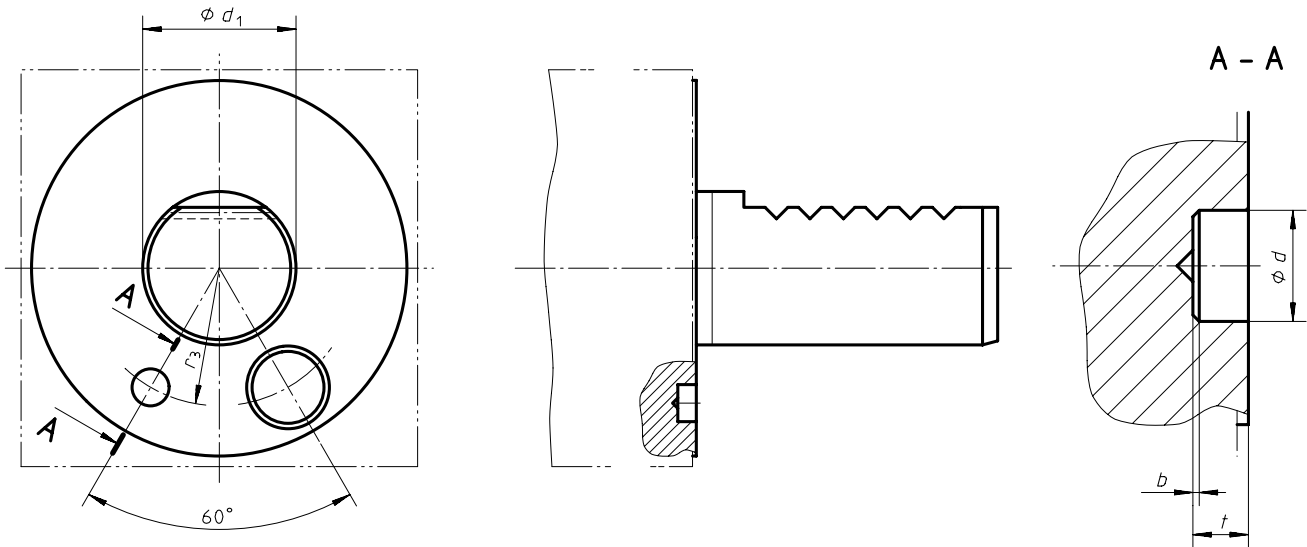


Figure 5 — Fitting position of the data medium
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Table 3 — Fitting dimensions of the data medium
Dimensions in millimetres

| | |
|-------------------------------------|---|
| b_{max} | $0,3 \times 45^\circ$ or R 0,3 1) |
| d | $\begin{matrix} +0,09 \\ 0 \end{matrix}$ |
| t | $4,6 \begin{matrix} +0,2 \\ 0 \end{matrix}$ |
| 1) At the manufacturer's discretion | |

Table 4 — Dimensions of the fitting position of the data medium
Dimensions in millimetres

| | | | | | | | |
|-------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| d_1 | 20 | 25 | 30 | 40 | 50 | 60 | 80 |
| r_3 | $\pm 0,1$ | 18 | 21 | 25 | 32 | 37 | 48 |

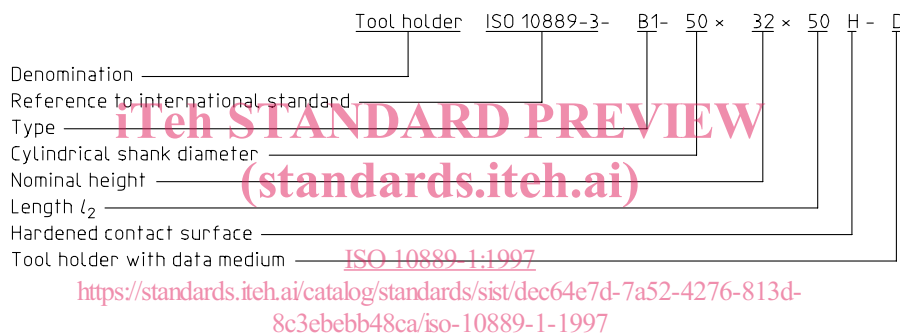
6 Technical delivery conditions

6.1 Designation

A tool holder for machine tools in accordance with this ISO 10889 shall be designated by

- a) "Tool holder";
- b) reference to the corresponding part of ISO 10889 (ISO 10889-2 to ISO 10889-7);
- c) dash;
- d) type;
- e) dash;
- f) cylindrical shank diameter d_1 , in millimetres;
- g) multiplication sign, x;
- h) nominal height h_1 , in millimetres, or characteristic dimensions for the location bore of the tool holder;
- i) multiplication sign, x;
- j) for type B tool holders, dimension l_2 , in millimetres;
- k) for tool holders with hardened contact surface, the letter H;
- l) for tool holders with data medium, a dash and the letter D.

EXAMPLE



6.2 Material

Material of cylindrical shank and tool holder is at the discretion of the manufacturer. The tensile strength of the material shall be at least 900 N/mm².

Material of O-rings: FPM in accordance with ISO 1629.

6.3 Design

6.3.1 Normal design

Normal design are tool holders without data medium and without hardened contact surface.

6.3.2 Surface

The surface hardness of hardened cylindrical shank, is (56⁺⁴₀) HRC, and the depth of hardening is at least 0,5 mm.

6.4 Scope of delivery

The scope of delivery of tool holders does not include O-rings. In case O-rings are included in the scope of delivery, it shall be mentioned in the designation (O for O-rings).