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**Plain bearings — Lubrication holes,  
grooves and pockets — Dimensions,  
types, designation and their  
application to bearing bushes**

*Paliers lisses — Trous, rainures et poches de graissage — Dimensions,  
types, désignation et leurs applications dans les bagues*

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# Contents

|  | Page     |
|--|----------|
| Foreword .....   | iv       |
| <b>1 Scope .....</b>   | <b>1</b> |
| <b>2 Normative references .....</b>  | <b>1</b> |
| <b>3 Terms and definitions .....</b>   | <b>1</b> |
| <b>4 Dimensions, types and designation .....</b>   | <b>1</b> |
| 4.1 General .....  | 1        |
| 4.2 Lubrication holes .....  | 1        |
| 4.2.1 Dimensions and types .....   | 1        |
| 4.2.2 Designation .....  | 2        |
| 4.3 Lubrication grooves .....  | 2        |
| 4.3.1 Dimensions and types .....   | 2        |
| 4.3.2 Designation .....  | 4        |
| 4.4 Lubrication pockets .....  | 4        |
| 4.4.1 Dimensions and types .....   | 4        |
| 4.4.2 Designation .....  | 5        |
| 4.5 Design .....   | 5        |
| <b>5 Lubrication holes, grooves and pockets on bearing bushes .....</b>                    | <b>5</b> |
| <b>6 Examples of the designation of bushes with lubrication holes and/or grooves .....</b> | <b>7</b> |
| <b>Bibliography .....</b>  | <b>8</b> |

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# ISO 12128:2020(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 3, *Dimensions, tolerances and construction details*.

This third edition cancels and replaces the second edition (ISO 12128:2001), which has been technically revised. The main changes to the previous edition are as follows:

- dimension units added to tables;
- Bibliography added and ISO 4379 and ISO 4383 moved from [Clause 2](#) to the Bibliography;
- references corrected.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Plain bearings — Lubrication holes, grooves and pockets — Dimensions, types, designation and their application to bearing bushes

## 1 Scope

This document specifies dimensions for lubrication holes, grooves and pockets for bearing bushes. These dimensions can be entered, for example on drawings, using the designation examples. Their use depends in particular on the specific operating conditions.

In addition, it enables the user to assign the different types of lubricant feed and distribution to solid and steel-backed plain bearing bushes made of copper alloys, aluminium alloys, thermosetting plastics, thermoplastics or artificial carbon.

NOTE Different types of lubricant feed and distribution for plain bearing bushes made of sintered metals have not been specified due to the fact that these bushes are soaked with lubricant. Plain bearing bushes made of artificial carbon are not lubricated with oil or grease.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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*

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

## 4 Dimensions, types and designation

### 4.1 General

The dimensions of the lubrication holes, grooves and pockets are related to the bearing wall thickness  $s$ . The given diameter  $d_1$  shall only serve as an auxiliary dimension.

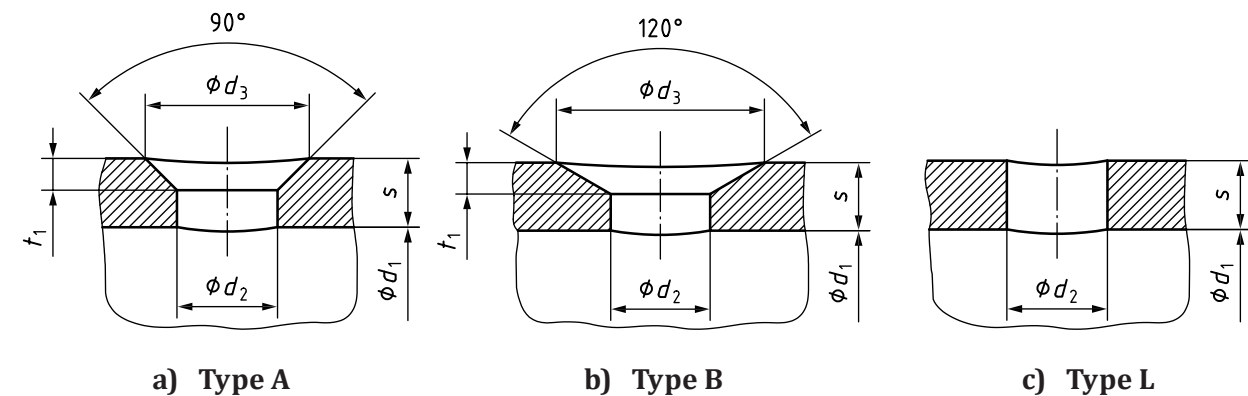
### 4.2 Lubrication holes

#### 4.2.1 Dimensions and types

Dimensions and types of lubrication holes shall be in accordance with [Figure 1](#).

Lubrication holes may be provided in conjunction with lubrication grooves and pockets, or, if the requirement to be met by a lubrication point is less stringent, even without these.

Dimensions in mm



|               |        |               |     |      |                     |      |      |             |      |
|---------------|--------|---------------|-----|------|---------------------|------|------|-------------|------|
| $d_2$         |        | 2,5           | 3   | 4    | 5                   | 6    | 8    | 10          | 12   |
| $t_1$         |        | 1             | 1,5 | 2    | 2,5                 | 3    | 4    | 5           | 6    |
| $d_3 \approx$ | Type A | 4,5           | 6   | 8    | 10                  | 12   | 16   | 20          | 24   |
|               | Type B | 6,0           | 8,2 | 10,9 | 13,7                | 16,4 | 21,9 | 27,3        | 32,8 |
| $s$           | $>$    | —             | 2   | 2,5  | 3                   | 4    | 5    | 7,5         | 10   |
|               | $\leq$ | 2             | 2,5 | 3    | 4                   | 5    | 7,5  | 10          | —    |
| $d_1$         | nom.   | $d_1 \leq 30$ |     |      | $30 < d_1 \leq 100$ |      |      | $d_1 > 100$ |      |

Figure 1 — Lubrication holes

<https://standards.iteh.ai/catalog/standards/sist/a91b68a4-3e28-4804-b572-4a82ae472e8b/sist-iso-12128-2021>

#### 4.2.2 Designation

EXAMPLE A lubrication hole of type A with diameter  $d_2 = 3$  mm is designated as follows:

**Lubrication hole ISO 12128 - A3**

### 4.3 Lubrication grooves

#### 4.3.1 Dimensions and types

Dimensions and types of lubrication grooves shall be in accordance with [Figure 2](#). Dimensions and types of lubrication grooves with closed ends shall be in accordance with [Figure 3](#).

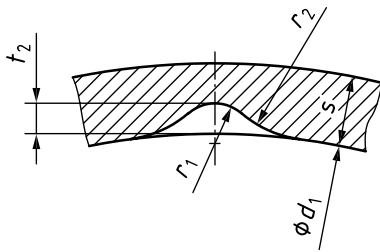
Lubrication grooves are mainly provided on plain bearings. Types C, D and E are also used in conjunction with type H (circumferential groove), predominantly on plain bearings made of non-ferrous metal, steel, cast iron or plastics, types F and G predominantly on plain bearings made from artificial carbon, aluminium alloys or copper alloys.

Type J is a narrow blended groove principally for use with grease lubrication.

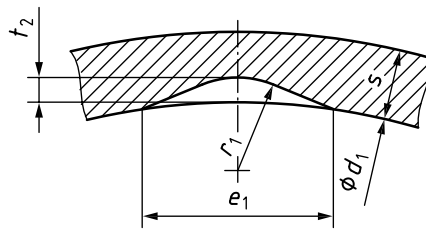
In order to facilitate machining and avoid burrs, all sharp corners should have a small chamfer or radius.

In order to facilitate manufacture, the dimension of the bearing thickness remaining at the base of the groove may be specified on the drawing as the control dimension.

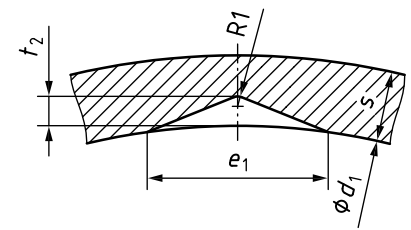




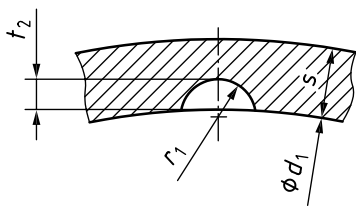
a) Type C



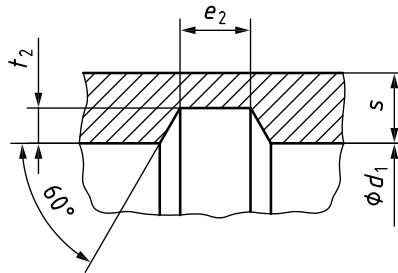
b) Type D



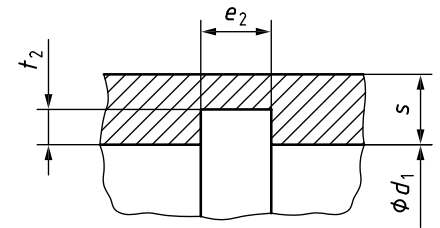
c) Type E



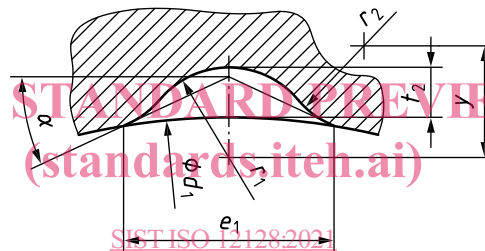
d) Type F



e) Type G



f) Type H



g) Type J

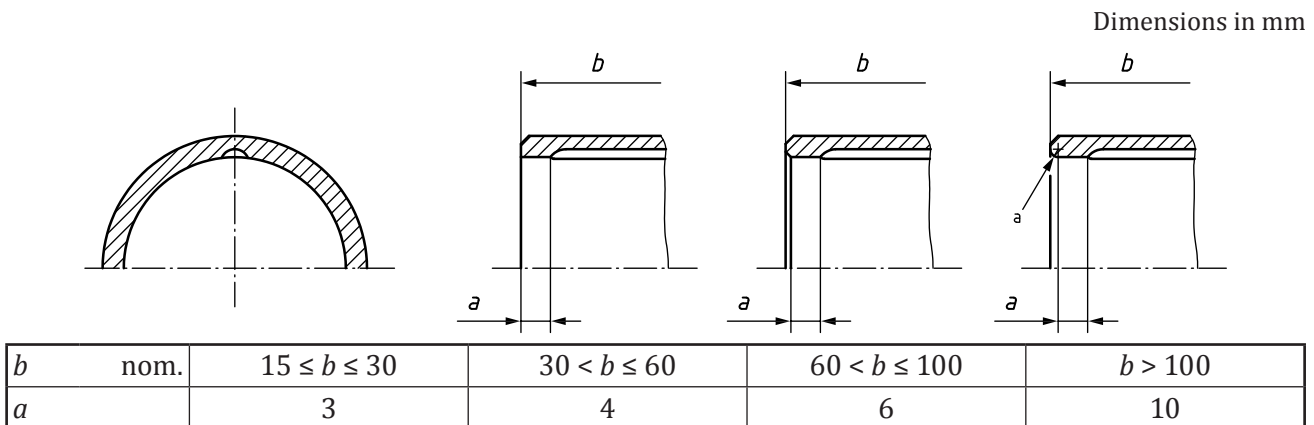
<https://standards.iteh.ai/catalog/standards/sist/a91b68a4-3e28-4804-b572-4a82ae472e81/sist-12128-2021>

| $t_2$<br>mm | $e_1$<br>mm |   | $e_2$<br>mm |   | $r_1$<br>mm |     |     |     | $r_2$<br>mm |     | $y$<br>mm | $\alpha$<br>° | $s$<br>mm |     | $d_1$<br>mm    |    |
|-------------|-------------|---|-------------|---|-------------|-----|-----|-----|-------------|-----|-----------|---------------|-----------|-----|----------------|----|
| Type        | Type        |   | Type        |   | Type        |     |     |     | Type        |     | Type      | Type          |           |     | Type           |    |
| C to J      | D, E        | J | G           | H | C           | D   | F   | J   | C           | J   | J         | J             | >         | ≤   | C to H         | J  |
| 0,4         | 3           | 3 | 1,2         | 3 | 1,5         | 1,5 | 1   | 1   | 1,5         | 1   | 1,5       | 28            | —         | 1   | $d_1 \leq 30$  | 16 |
| 0,6         | 4           | 4 | 1,6         | 3 | 1,5         | 1,5 | 1   | 1,5 | 2           | 1,5 | 2,1       | 25            | 1         | 1,5 |                | 20 |
| 0,8         | 5           | 5 | 1,8         | 3 | 1,5         | 2,5 | 1   | 1,5 | 3           | 1,5 | 2,2       | 25            | 1,5       | 2   |                | 30 |
| 1           | 8           | 6 | 2           | 4 | 2           | 4   | 1,5 | 2   | 4,5         | 2   | 2,8       | 22            | 2         | 2,5 |                | 40 |
| 1,2         | 10,5        | 6 | 2,5         | 5 | 2,5         | 6   | 2   | 2   | 6           | 2   | 2,6       | 22            | 2,5       | 3   | $d_1 \leq 100$ | 40 |
| 1,6         | 14          | 7 | 3,5         | 6 | 3           | 8   | 3   | 2,5 | 9           | 2,5 | 3         | 20            | 3         | 4   |                | 50 |
| 2           | 19          | 8 | 4,5         | 8 | 4           | 12  | 4   | 2,5 | 12          | 2,5 | 26        | 20            | 4         | 5   |                | 60 |

## ISO 12128:2020(E)

|     |    |   |     |    |   |    |   |   |    |   |     |    |     |     |             |    |
|-----|----|---|-----|----|---|----|---|---|----|---|-----|----|-----|-----|-------------|----|
| 2,5 | 28 | 8 | 7,5 | 10 | 5 | 20 | 5 | 3 | 15 | 3 | 2,8 | 20 | 5   | 7,5 | $d_1 > 100$ | 70 |
| 3,2 | 38 | — | 11  | 12 | 7 | 28 | 7 | — | 21 | — | —   | —  | 7,5 | 10  |             | —  |
| 4   | 49 | — | 14  | 15 | 9 | 35 | 9 | — | 27 | — | —   | —  | 10  | —   |             | —  |

Figure 2 — Lubrication grooves



<sup>a</sup> Rounded.

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Figure 3 — Lubrication grooves with closed ends

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**4.3.2 Designation** <https://standards.iteh.ai/catalog/standards/sist/a91b68a4-3e28-4804-b572-4a82ae472e8b/sist-iso-12128-2021>

EXAMPLE A lubrication groove of type D with groove depth  $t_2 = 0,8$  mm is designated as follows:

**Lubrication groove ISO 12128 – D0,8**

## 4.4 Lubrication pockets

### 4.4.1 Dimensions and types

Dimensions and types of lubrication pockets shall be in accordance with [Figure 4](#).

Lubrication pockets shall in general be provided in cases where larger lubrication spaces are required. Type K shall predominantly be used for plain slideways with a to-and-fro movement in a straight line.