

# INTERNATIONAL STANDARD

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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

## Sintered metal materials — Specifications —

### Part 1 : Materials, for bearings, impregnated with liquid lubricant

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*Matériaux métalliques frittés — Spécifications* (standards.iteh.ai)

*Partie 1 : Matériaux, pour coussinets, imprégnés de lubrifiant liquide*

ISO 5755-1:1987

<https://standards.iteh.ai/catalog/standards/sist/ed07ff11-180b-4efd-8236-aa5ec733a0aa/iso-5755-1-1987>

Reference number  
ISO 5755-1 : 1987 (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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

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International Standard ISO 5755-1 was prepared by Technical Committee ISO/TC 119, *Powder metallurgy*.

This third edition cancels and replaces the second edition (ISO 5755-1:1986), of which it constitutes a minor revision.

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Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

# Sintered metal materials — Specifications —

## Part 1 :

### Materials, for bearings, impregnated with liquid lubricant

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### 1 Scope and field of application

This part of ISO 5755 specifies the requirements for the chemical composition and the mechanical and physical properties of sintered metal materials, impregnated with liquid lubricant, mainly used for bearings.

### 2 References

ISO 2738, *Permeable sintered metal materials — Determination of density, oil content and open porosity.*

ISO 2739, *Sintered metal bushes — Determination of radial crushing strength.*

ISO 2795, *Plain bearings made from sintered materials — Dimensions and tolerances.*

### 3 Sampling

Sampling shall be carried out in accordance with the relevant International Standards.

### 4 Test methods

#### 4.1 Chemical analysis

In cases of dispute, the method of chemical analysis shall be that specified in the relevant International Standard. If no Inter-

national Standard is available, the method may be agreed upon and specified at the time of enquiry and order.

#### 4.2 Open porosity

The open porosity shall be determined in accordance with ISO 2738.

#### 4.3 Liquid lubricant content

The liquid lubricant content shall be determined in accordance with ISO 2738.

#### 4.4 Radial crushing strength

The radial crushing strength shall be determined in accordance with ISO 2739. The wall thicknesses of test pieces to be used shall be in the range covered by ISO 2795. For test pieces with wall thicknesses outside this range, the specified radial crushing strength values are different and shall be agreed between the interested parties.

### 5 Specifications

**5.1** The liquid lubricant content shall be not less than 90 % of the measured open porosity.

**5.2** The chemical composition and mechanical and physical properties are given in the table.

Table – Chemical composition, mechanical and physical properties

| Materials            | Grade <sup>1)</sup> | Mandatory values     |         |         |         |                      |                                    |                          | Informative approximate values |                                  |                                 |
|----------------------|---------------------|----------------------|---------|---------|---------|----------------------|------------------------------------|--------------------------|--------------------------------|----------------------------------|---------------------------------|
|                      |                     | Chemical composition |         |         |         |                      | Mechanical and physical properties |                          |                                |                                  |                                 |
|                      |                     | C total              | Cu      | Fe      | Sn      | Total other elements | Open porosity                      | Radial crushing strength | Density                        | Relative density                 | Coefficient of linear expansion |
| %                    | %                   | %                    | %       | max.    | P       | K                    | $\rho$                             | %                        | $\alpha_l$                     |                                  |                                 |
|                      |                     | %                    | %       | %       | %       | %                    | N/mm <sup>2</sup>                  | g/cm <sup>3</sup>        | %                              | 10 <sup>-6</sup> K <sup>-1</sup> |                                 |
| Iron                 | P 1011 Z            | < 0,3                | —       | Balance | —       | 2                    | > 27                               | > 120                    | 5,4                            | 70                               | 12                              |
|                      | P 1012 Z            |                      |         |         |         |                      | > 22                               | > 170                    | 5,8                            | 75                               |                                 |
|                      | P 1013 Z            |                      |         |         |         |                      | > 17                               | > 220                    | 6,2                            | 80                               |                                 |
| Iron-copper          | P 2011 Z            | < 0,3                | 1 to 4  | Balance | —       | 2                    | > 27                               | > 150                    | 5,4                            | 70                               | 12                              |
|                      | P 2012 Z            |                      |         |         |         |                      | > 22                               | > 200                    | 5,8                            | 75                               |                                 |
|                      | P 2013 Z            |                      |         |         |         |                      | > 17                               | > 250                    | 6,2                            | 80                               |                                 |
| Bronze               | P 4011 Z            | < 0,3                | Balance | —       | 9 to 11 | 2                    | > 27                               | > 110                    | 6,1                            | 70                               | 18                              |
|                      | P 4012 Z            |                      |         |         |         |                      | > 22                               | > 140                    | 6,6                            | 75                               |                                 |
|                      | P 4013 Z            |                      |         |         |         |                      | > 17                               | > 180                    | 7,0                            | 80                               |                                 |
|                      | P 4014 Z            |                      |         |         |         |                      | > 12                               | > 210                    | 7,4                            | 85                               |                                 |
| Bronze with graphite | P 4021 Z            | 0,5 to 2,0           | Balance | —       | 9 to 11 | 2                    | > 27                               | > 90                     | 5,9                            | 70                               | 18                              |
|                      | P 4022 Z            |                      |         |         |         |                      | > 22                               | > 120                    | 6,4                            | 75                               |                                 |
|                      | P 4023 Z            |                      |         |         |         |                      | > 17                               | > 160                    | 6,8                            | 80                               |                                 |

1) The letter Z indicates that the sintered material has been subjected to a finishing treatment. In this part of ISO 5755, it indicates that the material is impregnated with a liquid lubricant.

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