

# INTERNATIONAL STANDARD

**ISO**  
**12308**

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## **Plain bearings — Quality assurance — Sample types — Definitions, applications and testing**

*Paliers lisses — Assurance de la qualité — Types d'échantillons —  
Définitions, utilisation et essais*



Reference number  
ISO 12308:1994(E)

## Foreword

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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.

International Standard ISO 12308 was prepared by Technical Committee ISO/TC 123, *Plain bearings*, Subcommittee SC 5, *Quality analysis and assurance*.

Annex A of this International Standard is for information only.

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# Plain bearings — Quality assurance — Sample types — Definitions, applications and testing

## 1 Scope

This International Standard defines the types of plain bearing samples such as are exchanged between purchaser and manufacturer.

In the field of internal combustion engines and other series production, it is necessary to work with different types of samples depending on the purpose.

Different types of samples are

- samples used for tests and examinations which are carried out in the experimental stage and pilot lot stage; these include fitting samples, prototype samples and intermediate samples;
- samples used to prove that the quality<sup>1)</sup> is in accordance with the quality requirements (dimensions, material and performance specification); these include initial samples and reference samples and, if necessary, intermediate samples;
- samples which give selective information about particular quality characteristics of a plain bearing, relating to their conformity with the specifications; these involve reference and characteristic modification samples.

## 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions

of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 12301:1992, *Plain bearings — Quality control techniques and inspection of geometrical and material quality characteristics*.

## 3 Inspection and test report for samples

Together with the samples, the manufacturer shall supply a completed test report to the purchaser with data on dimensions, material and/or performance, as appropriate. In the fields of application listed in clause 1, the "Initial Sample Test Report" is used for the initial samples and the characteristic modification samples. When the purchaser carries out an inspection, he informs the manufacturer about the results.

The test reports are kept by the manufacturer on agreement between the manufacturer and purchaser.

## 4 Marking

All sample supplies shall be marked conspicuously by the manufacturer. The kind of marking is to be agreed between the manufacturer and purchaser.

1) See ISO 3534 and ISO 8402 for further information.

## 5 Types of plain bearing samples, definition and manufacturing process, application and testing

See table 1.

## 6 Designation

### EXAMPLE

Designation of an initial sample (S4) with test report:

### Sample ISO 12308 - S4

Table 1

| Type of sample      | Symbol | Definition and manufacturing process                                                                                                                                                                                                                                                                                                                          | Application                                                                                                                                                                                                                                                                                                    | Testing<br>(by manufacturer)                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fitting sample      | S1     | Plain bearing applied to fitting tests only                                                                                                                                                                                                                                                                                                                   | Fitting tests on stationary machines, internal combustion engines, etc.                                                                                                                                                                                                                                        | Fitting dimensions only<br><br>Complete data of each fitting dimension for each bearing<br><br>Recording of these individual test results in the test report                                                                                                                                                                                                                                           |
| Prototype sample    | S2     | Plain bearing, destined for functional tests, inspection or tests by the purchaser<br><br>NOTE — These samples are manufactured using available equipment.                                                                                                                                                                                                    | Technical developments at the purchaser<br><br>— functional tests, e.g. experimental run-in machines, internal combustion engines, gear boxes etc.<br><br>— performance in test rig, e.g. wear resistance<br><br>— for establishing the specification of quality characteristics (dimensions, materials, etc.) | Agreed specified quality characteristics<br><br>Complete quality testing of all specified quality characteristics carried out on the quantity agreed<br><br>Recording of these individual test results in the test report<br><br>NOTE — The number of samples should not exceed 200.                                                                                                                   |
| Intermediate sample | S3     | Plain bearing which corresponds to a large degree to the "initial sample", but has only partially been manufactured by means of the equipment and processes used for series production                                                                                                                                                                        | Pilot lot and initial series<br><br>NOTES<br><br>1 Use to be agreed between manufacturer and purchaser.<br><br>2 Intermediate sample shall be substituted by the "initial sample" later on.                                                                                                                    | Quality characteristics in accordance with ISO 12301<br><br>Quantity tested should be 20 max.<br><br>Recording of these individual test results in the test report<br><br>The "non-series" process cycles and sequences shall clearly be indicated by the manufacturer in the report                                                                                                                   |
| Initial sample      | S4     | Plain bearing, completely manufactured by means of the equipment and processes used for series production under the appropriate control conditions<br><br>NOTE — The initial sample is to furnish the proof that the manufacturer is in a position to comply with the quality requirements (dimensions, material, function, etc.) requested by the purchaser. | Series assembly after approval                                                                                                                                                                                                                                                                                 | Quality characteristics in accordance with ISO 12301<br><br>Quantity tested should be 20 max.<br><br>Recording of these individual test results in the test report<br><br>NOTES<br><br>1 It is advisable to keep one of the accepted samples available at the manufacturer's and/or purchaser's premises for a period to be agreed.<br><br>2 Performance testing is carried out by the purchaser only. |

| Type of sample                     | Symbol | Definition and manufacturing process                                                                                                                                                                                                                       | Application                                                                                                                                                                                                                                                       | Testing<br>(by manufacturer)                                                                                                                                                                                                                                                                                                     |
|------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reference sample                   | S5     | <p>Plain bearing representing the desired value of a quality characteristic</p> <p>NOTE — These samples are taken by the manufacturer from the series production or from the delivery ready for despatch and tested as agreed upon with the purchaser.</p> | The reference samples are delivered to the purchaser for the control test together with the determined actual values of all quality characteristics designated for the test, in order to check, for example, the comparability of the test methods/equipment used | <p>Dimensional and material testing of all quality characteristics agreed between manufacturer and purchaser (e.g. nip, bearing material composition)</p> <p>Test data to be given by the manufacturer</p> <p>NOTE — The reported test values may substitute a receiving inspection carried out at the purchaser's premises.</p> |
| Characteristic modification sample | S6     | Plain bearing manufacturer after the execution of a specification modification                                                                                                                                                                             | Series assembly after approval                                                                                                                                                                                                                                    | <p>Only those quality characteristics concerned by the modification need be tested</p> <p>Quantity tested should be 20 max.</p> <p>Recording of these individual test results in the test report</p>                                                                                                                             |

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## **Annex A**

(informative)

### **Bibliography**

- [1] ISO 3534-1:1993, *Statistics — Vocabulary and symbols — Part 1: Probability and general statistical terms.*
- [2] ISO 3534-2:1993, *Statistics — Vocabulary and symbols — Part 2: Statistical quality control.*
- [3] ISO 3534-3:1985, *Statistics — Vocabulary and symbols — Part 3: Design of experiments.*
- [4] ISO 8402:1986, *Quality — Vocabulary.*

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