

INTERNATIONAL STANDARD

ISO
10792-2

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Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner —

Part 2: Inch series

*Aéronautique — Rotules en acier résistant à la corrosion, à garniture
autolubrifiante, utilisées dans la structure des avions —*

Partie 2: Séries en inches



Reference number
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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.

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 10792-2 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 15, *Airframe bearings*.

ISO 10792 consists of the following parts, under the general title *Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner* :

- Part 1: *Metric series*
- Part 2: *Inch series*
- Part 3: *Technical specification*

Annexe A of this part of ISO 10792 is for information only.

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Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner —

Part 2: Inch series

1 Scope

This part of ISO 10792 specifies the characteristics of spherical plain bearings in corrosion-resisting steel with self-lubricating liner, narrow and wide series, for elevated loads at ambient temperature, for use in fixed or moving parts of the aircraft structure and control mechanisms at temperatures of $-55\text{ }^{\circ}\text{C}$ to $+163\text{ }^{\circ}\text{C}$.

It is applicable to self-lubricating spherical plain bearings (without rolling elements) consisting of an outer ring having a concave sphered sliding contact surface with self-lubricating liner and inner ring having a matched convex sphered sliding contact surface.

At the time that this part of ISO 10792 was developed, airframe spherical plain bearings with dimensions originally specified in Imperial units were dominant in world application. For this part of ISO 10792, the dimensions of these bearings have been converted into metric units with the original characteristics given in annex A for information only.

For new applications, the use of the bearings specified in ISO 10792-1 is recommended.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10792. 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 10792 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 683-16:1976, *Heat-treated steels, alloy steels and free-cutting steels — Part 16: Precipitation hardening stainless steels*.

ISO 683-17:1976, *Heat-treated steels, alloy steels and free-cutting steels — Part 17: Ball and roller bearing steels*.

ISO 1132:1980, *Rolling bearings — Tolerances — Definitions*.

ISO 6811:1983, *Spherical plain bearings — Vocabulary*.

ISO 8075:1985, *Aerospace— Surface treatment of hardenable stainless steel parts*.

ISO 10792-1:1995, *Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner — Part 1: Metric series*.

ISO 10792-3:1995, *Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner — Part 3: Technical specification*.

3 Definitions

For the purposes of this part of ISO 10792, the definitions given in ISO 6811 and ISO 10792-1 apply. In addition, definitions of the concepts related to the tolerances specified in this part of ISO 10792 are given in ISO 1132.

4 Symbols

For the purposes of this part of ISO 10792, the symbols given in ISO 1132 and ISO 10792-1 apply.

5 Characteristics

5.1 Dimensions and tolerances

The dimensions and tolerances for narrow-series spherical plain bearings shall conform to table 1; those for wide-series spherical plain bearings shall conform to table 2.

The configuration of spherical plain bearings shall conform to either figure 1 for those without face grooves or to figure 2 for those with face grooves.

5.2 Mass

The mass of spherical plain bearings shall conform to the values given in tables 1 and 2.

5.3 Loads and starting torques

Loads and starting torques shall conform to the values given in table 3 for narrow-series bearings and to those given in table 4 for wide-series bearings.

5.4 Materials

Inner ring	Bearing steel, type 21, in accordance with ISO 683-17, quenched and tempered, except for hardnesses 55 HRC to 62 HRC.
Outer ring	Bearing steel, type 1, in accordance with ISO 683-16, except with maximum molybdenum content of 0,5 %, heat treatment R 093, hardnesses 28 HRC to 37 HRC, before swaging.
Liner	Self-lubricating, wear-resisting material with a low coefficient of friction.

5.5 Surface treatment

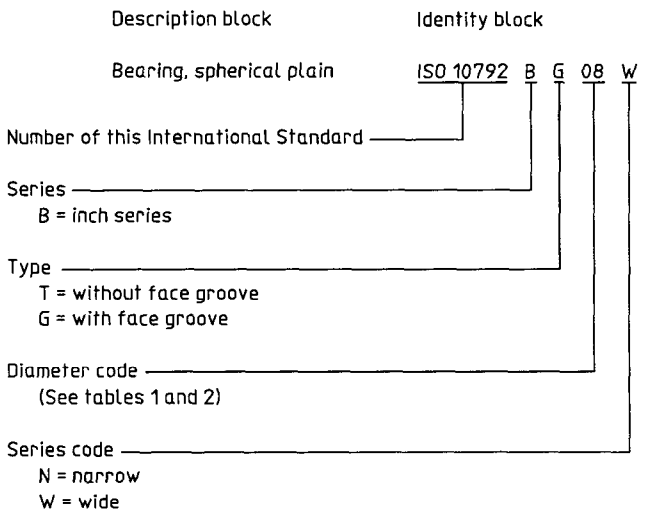
A surface treatment shall be applied to the inner ring material in accordance with ISO 8075. The application of this same surface treatment to the outer ring material is optional.

6 Technical specification

Spherical plain bearings supplied in accordance with this part of ISO 10792 shall conform with the requirements of ISO 10792-3.

7 Designation

Each spherical plain bearing in accordance with this part of ISO 10792 shall be designated as in the following example.



8 Marking

In addition to the manufacturer's identification, each spherical plain bearing shall be marked using the identity block as defined in clause 7. Marking position and method are at the manufacturer's option but shall not adversely affect the working of the spherical plain bearing.

Dimensions in millimetres
Surface roughness values in micrometres

$Ra 3,2 / \left(Ra 0,8 / Ra 0,2 \right)$

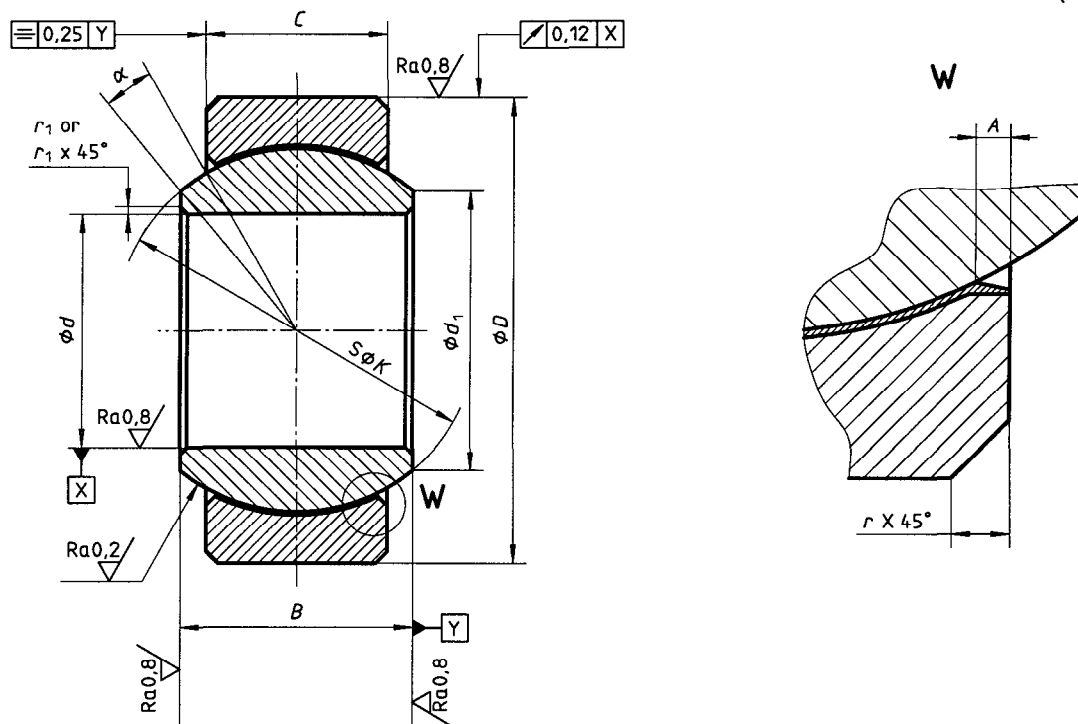


Figure 1 — Spherical plain bearing with self-lubricating liner without face groove

Dimensions in millimetres
Surface roughness values in micrometres

$Ra 3,2 / \left(Ra 0,8 / Ra 0,2 \right)$

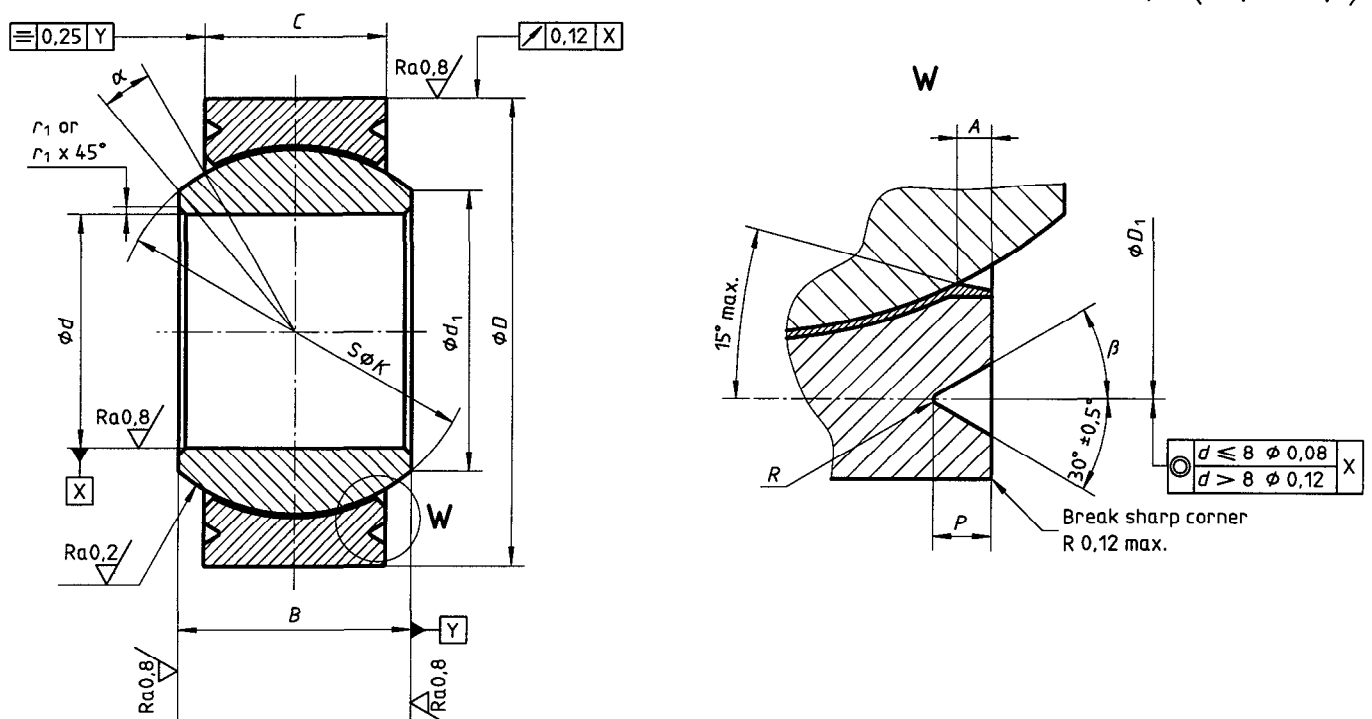


Figure 2 — Spherical plain bearing with self-lubricating liner with face groove