SLOVENSKI STANDARD
SIST EN 2020:2001

01-januar-2001

Bearings, airframe rolling, single row, self aligning roller bearings in corrosion resisting steel, diameter series 3 and 4 - Dimensions and loads - Aerospace series

Bearings, airframe rolling, single row, self aligning roller bearings in corrosion resisting steel, diameter series 3 and 4 - Dimensions and loads - Aerospace series

Luft- und Raumfahrt - Flugwerklager, einreihige Tonnenlager aus korrosionsbeständigem Stahl, Durchmesserreihen 3 und 4 - Maße und Belastungen

Roulements pour structures d'aéronefs, roulements en acier résistant a la corrosion, a rotule sur une rangée de rouleaux, séries de diametres 3 et 4 - Dimensions et charges - Série aérospatiale

Ta slovenski standard je istoveten z: **EN 2020:1984**

ICS:

49.035	Sestavni deli za letalsko in vesoljsko gradnjo	Components for aerospace construction

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English version

Bearings-airframe rolling single row self aligning roller bearings in corrosion resisting steel diameter series 3 and 4 Dimensions and loads Aerospace series

Roulements pour structures d'aéronefs roulements en acier résistant à la corrosion à rotule sur une rangée de rouleaux séries de diamètres 3 et 4 Dimensions et charges Série aérospatiale

Luft- und Raumfahrt Flugwerklager einreihige Tonnenlager aus Korrosionsbeständigem Stahl Durchmesserreihen 3 und 4 Masze und Belastungen

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CEN

European Committee for Standardization
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BRIEF HISTORY

This European Standard has been prepared by the European Association of Aerospace Constructors (AECMA).

This Standard has been accepted by the European Committee for Standardization (CEN) after inquiries and votes carried out in accordance with the rules of this Committee.

CONTENTS

1 SCOPE

This standard specifies the characteristics, of rigid single row ball bearings of diameter series 3 and 4 1) designed to withstand only slow rotations and oscillations under load. They are intended for use between fixed and moving parts of the aircraft structure and their control mechanisms.

2 FIELDS OF APPLICATION

The airframe roller bearings defined in the present standard shall be used from – 54 to + 150 °C.

However, being lubricated with the following greases :

- very high pressure grease, ester type (code A), operational range – 73 to + 121 °C or
- very high pressure grease, synthetic hydrocarbons, general purpose (code B), operational range – 54 to + 177 °C (refer to EN2063),

their field of application when lubricated with code A grease shall be limited to + 121 °C.

3 REFERENCES

ISO 15 - 1981, Rolling bearings – Radial bearings – Boundary dimensions – General plan

EN2030, Steel FE-PL43 – Hardened and tempered, Bars, D ≤ 150 mm

EN2063, Bearings, airframe rolling – Technical Specification

4 DEFINITIONS

Self aligning roller bearings, full complement (without cage), single row.

5 SYMBOLS

Δds = the deviation of a single bore diameter
ΔDs = the deviation of a single outside diameter
Δdmp = single plane mean bore diameter deviation
ΔDmp = single plane mean outside diameter deviation
C_s = permissible static radial load
F_a = bearing axial load = axial component of actual bearing load
F_a max. = permissible static axial load
F_r = static radial load
P_{or} = static equivalent radial load
Y_s = coefficient of axial load.

6 MATERIALS

Inner ring : Steel EN2030, ≥ 58 HRC.
Outer ring : Steel EN2030, ≥ 58 HRC.
Rollers : Steel EN2030, ≥ 58 HRC.
Shields : Corrosion resisting material
Seals : Polytetrafluoroethylene (PTFE);
or polytetrafluoroethylene (PTFE) – glass fibre reinforced plastic material.

1) See ISO 15.

7 REQUIRED CHARACTERISTICS

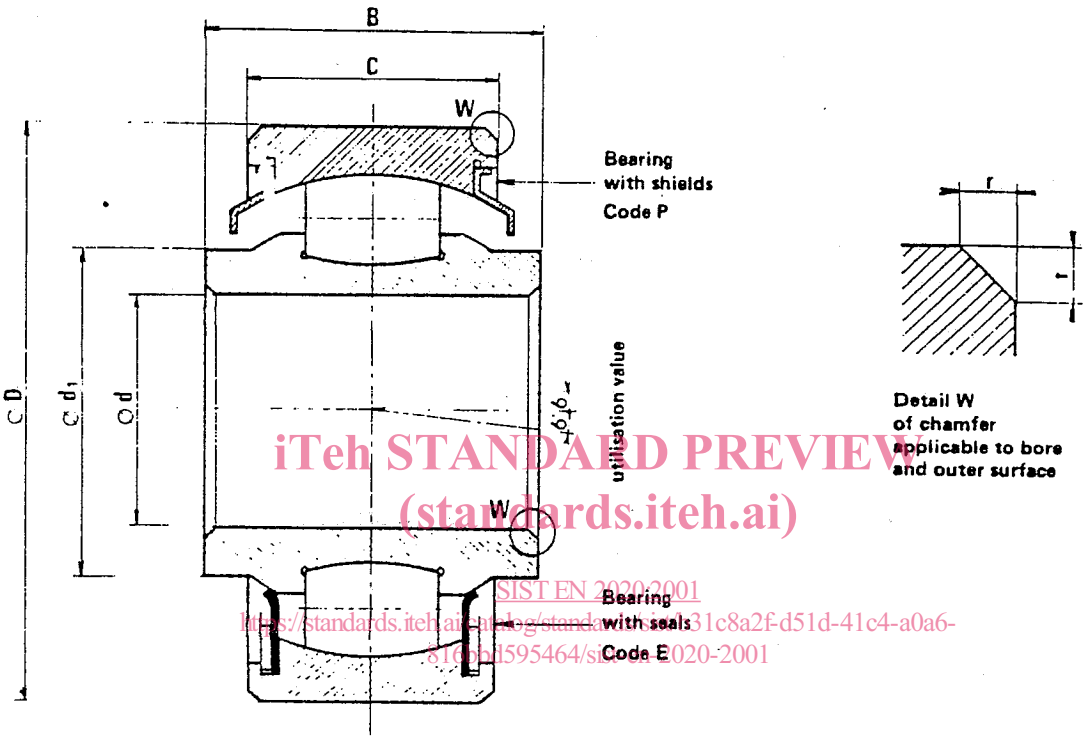
7.1 - Dimensions - Tolerances - Clearances - Loads - Mass.

Configuration shall correspond with the figure. Dimensions shall correspond with the table. Bearings can be assembled with either seals or shields.

7.2 - Surface roughness.

Ra = 0,2 µm for the raceway and rolling elements.

Ra = 0,8 µm for the bore side faces and cylindrical outer surface.



FIGURE

TABLE

Dimensions in millimetres

d Code	d nominal	D	C 0 −0,12	B 0 −0,12	d_1 nom.	Tolerances µm Δ_{dmp}	Δ_{Dmp}	Δ_{ds}	Δ_{Ds}	r	Radial internal clearance µm	Permissible static radial load C_s kN	Mass kg/1000 parts ≈
08	8	30	14	17	14	0 −8	0 −9	+ 2 −10	+ 2 −11	0,3 to 0,8	10 to 20	36,7	58
10	10	35	17	21	15,7		0 −11	+ 3 −11	+ 3 −14			53,9	91
12	12	37			18							60,2	106
15	15	42			21,8							69,6	132
17	17	47	19	23	25,1							94,5	186
20	20	52	21	26	28	0 −10	0 −13	+ 3 −13	+ 4 −17	0,3 to 1	15 to 25	113,2	246
25	25	62	24	29	34,5							161,7	397
30	30	72	27	34	41,3							215,6	610

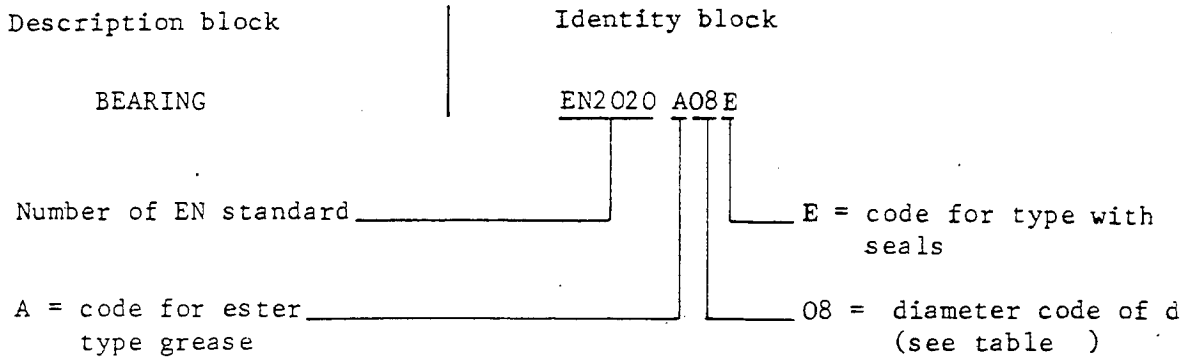
$F_{a\,max.} = \frac{C_s}{Y_s}$ where $Y_s = 3,3$

Equivalent static radial load P_{or}. Load P_{or} resulting from radial and axial loads is calculated according to formula $P_{or} = F_r + 3,3\,F_a$ and shall be less than or equal to load C_s given in the table, see EN2063.

For ultimate static loads, see EN2063.

8 DESIGNATION

Each bearing shall only be designated as in the following example :



where the following codes are applied :

Greases A = ester type grease

B = synthetic hydrocarbon type grease

Types E = with seals

P = with shields

Note : If necessary, the originator code S 9005 may be introduced between the description block and the identity block.

9 MARKING

In addition to the manufacturers' own marking, each bearing shall be marked, on one side face only using the identity block as defined in clause 8 of this standard.
Marking position and method are at the manufacturer's option.

10 TECHNICAL SPECIFICATION

Bearings supplied to this standard shall conform with the requirements of EN2063.