



SLOVENSKI STANDARD
SIST EN 3292:2001
01-januar-2001

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

Luft- und Raumfahrt - Flugwerkklager - Einreihige Tonnenlager aus korrosionsbeständigem Stahl - Durchmesserreihen 3 und 4 - Maße und Belastungen
(standards.iteh.ai)

Série aérospatiale - Roulements pour structures d'aéronefs - Roulements an acier résistant a la corrosion, a rotule sur une rangee de rouleaux - Séries de diametres 3 et 4 - Dimensions et charges
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Ta slovenski standard je istoveten z: EN 3292:1994

ICS:

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

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EUROPEAN STANDARD

EN 3292

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1994

UDC 629.7.02:681.822.7.004.1:681.828:669.14.018.89

Descriptors: Aircraft industry, airframe bearings, self-aligning bearings, roller bearings, corrosion resisting steel, dimensions, static loads

English version

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

iTeh STANDARD PREVIEW

Série aérospatiale - 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

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

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

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has successively received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This standard was submitted for Formal Vote, and the result was positive.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1994, and conflicting national standards shall be withdrawn at the latest by December 1994.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

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INTERNATIONAL SYSTEM OF UNITS

1 Scope

This standard specifies the characteristics of single row self-aligning roller bearings in corrosion resisting steel of diameter series 3 and 4 ¹⁾ designed to withstand only slow rotations, oscillations and/or swivelling under load.

They are intended for use between fixed and moving parts of the aircraft structure and their control mechanisms.

The airframe rolling bearings defined in this standard are used from - 54 °C to + 150 °C.

However, being lubricated with the following greases :

- very high pressure grease, ester type (code A), operational range - 73 °C to + 121 °C or
- very high pressure grease, synthetic hydrocarbons, general purpose (code B), operational range - 54 °C to + 177 °C (see EN 3280),

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

2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- | | |
|----------|---|
| ISO 15 | Rolling bearings - Radial bearings - Boundary dimensions - General plan |
| ISO 1132 | Rolling bearings - Tolerances - Definitions |
| EN 2030 | Steel FE-PM43 - Hardened and tempered - Bars $D \leq 150$ mm - Aerospace series 2) |
| EN 2226 | Steel FE-PM43 - Hardened and tempered - Hand and die forgings $D_e \leq 150$ mm - Aerospace series 2) |
| EN 3280 | Aerospace series - Bearings, airframe rolling, rigid or self-aligning - Technical specification |

3 Definition

For the purposes of this standard, the following definition applies :

Bearing : full complement of rollers (without cage)

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4 Symbols

The definitions of tolerances and clearances are given in ISO 1132.

- | | |
|----------------|---|
| Δ_{dmp} | = single plane mean bore diameter deviation |
| Δ_{Dmp} | = single plane mean outside diameter deviation |
| Δ_{ds} | = deviation of a single bore diameter |
| Δ_{Ds} | = deviation of a single outside diameter |
| G_a | = axial internal clearance |
| G_r | = radial internal clearance |
| K_{ia} | = radial runout of assembled bearing inner ring |
| K_{ea} | = radial runout of assembled bearing outer ring |
| F_a max. | = permissible static axial load |
| C_s | = permissible static radial load |
| P_{or} | = static equivalent radial load |
| F_a | = bearing axial load, axial component of actual bearing load |
| F_r | = bearing radial load, radial component of actual bearing load. |

1) See ISO 15

2) Published as AECMA Standard at the date of publication of this standard

5 Required characteristics

5.1 Dimensions - Tolerances - Clearances - Loads - Mass

Configuration : see figure 1 ; the bearings are fitted with either seals or shields.
Values : see table 1.

5.2 Surface roughness

Raceways and rolling elements : $R_a = 0,2 \mu\text{m}$

Bore, side faces and cylindrical outer surface : $R_a = 0,8 \mu\text{m}$.

5.3 Materials

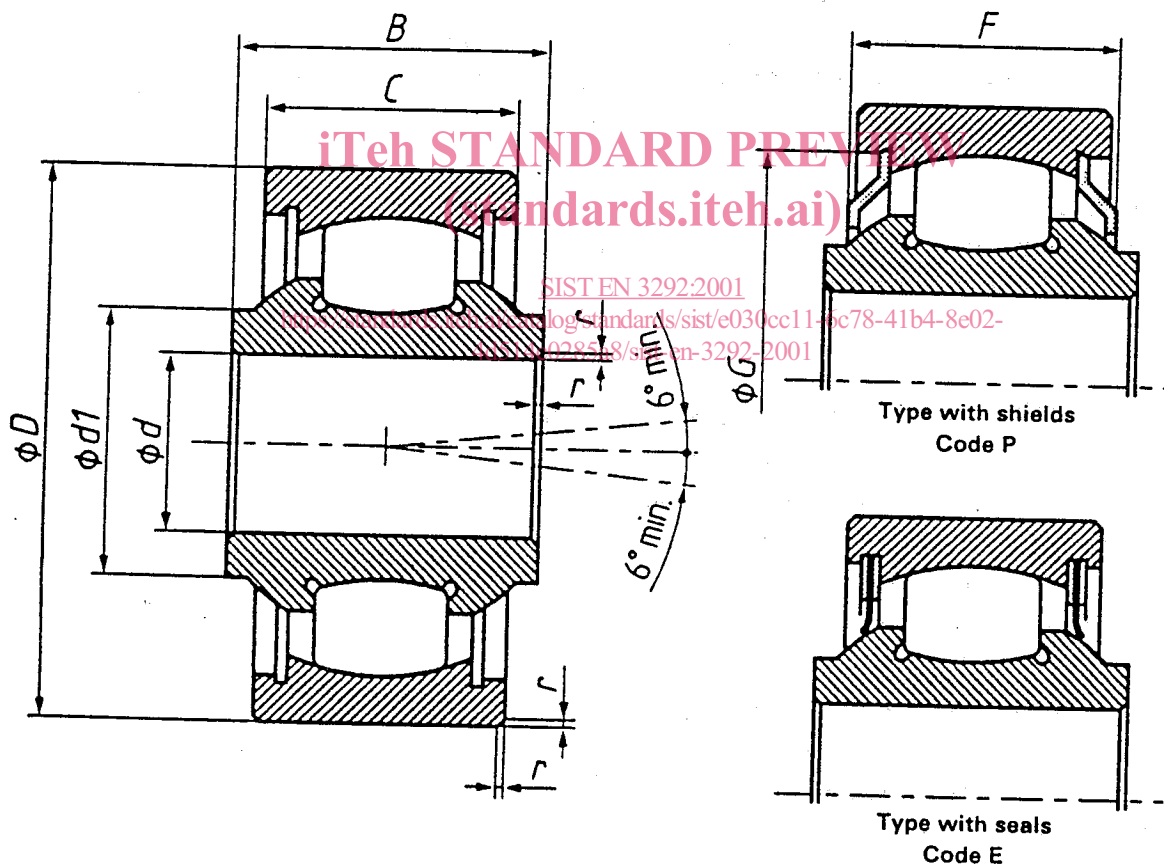
Inner ring : EN 2030 or EN 2226, ≥ 58 HRC

Outer ring : EN 2030 or EN 2221 or EN 2222, ≥ 58 HRC

Rollers : EN 2030, ≥ 58 HRC

Shields : Corrosion resisting material

Seals : Polytetrafluoroethylene (PTFE) or polytetrafluoroethylene (PTFE) reinforced with fibreglass.



NOTE : The installation of seals and shields is at the manufacturer's option.

Figure 1

Table 1

Dimensions in millimetres

d		B	C	D	d1	F	G	Tolerances μm				r	Mass kg/1000 parts \approx		
Code	Nominal	0 - 0,12	0 - 0,12		min.	max. 1)	max. 1)	Δ_{dmp}	Δ_{Dmp}	Δ_{ds}	Δ_{Ds}				
08	8	17	14	30	14	14	24,9	0 - 8	0 - 9	+ 2 - 10	+ 2 - 11	0,3 to 0,8	58		
10	10	21	17	35	15,7	18	28		0 - 11	+ 3 - 11	+ 3 - 14		0,3 to 0,8	91	
12	12			37	18		30,7							106	
15	15			42	21,8		35,5							132	
17	17			23	19		47							25,1	19
20	20			26	21		52	28				22		44,8	0 - 10
25	25	29	24	62	34,5	25	53,3	397							
30	30	34	27	72	41,3	30	63	610							

d	Internal clearances μm				Runout tolerances radial max. μm		Starting torque 2) in mN.m		Permissible static loads 3) kN	
	Axial max. G_a		Radial G_r		K _{ia}	K _{ea}	Code P	Code E	Axial F_a max.	Radial C_s
Code	Special group Code R	Group Code K	Special group Code R	Group Code K						
08	190	230	2 to 7	10 to 20	25	40	7	11	11,1	36,7
10							10	15,5	16,3	53,9
12	200	240	3 to 9				15	23	18,2	60,2
15							20	30	21,1	69,6
17							25	38	28,6	94,5
20	220	250	3 to 10	15 to 25	30	45	34,3	113,2		
25	240	290			35	52	49	161,7		
30					40	60	65,3	215,6		

1) Dimensions of the shields are at the manufacturer's option within the limits of F and G.

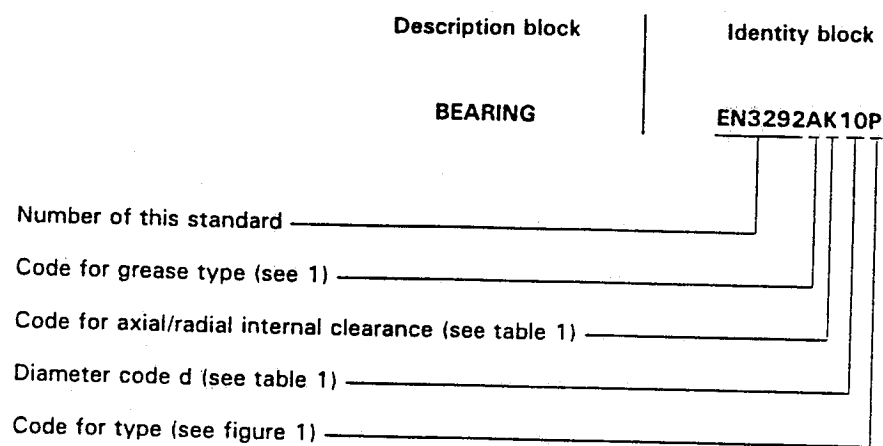
2) Definition, see EN 3280.

3) $F_r + 3,3 F_a = P_{or}$; P_{or} shall be $\leq C_s$.

For ultimate static loads, see EN 3280.

6 Designation

EXAMPLE :



NOTE : If necessary, the code I9005 shall be placed between the description block and the identity block.

7 Marking

In addition to the manufacturer's own marking, each bearing shall be marked, on one side face only, using the identity block, see 6.

Marking position and method are at the manufacturer's option.

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8 Technical specification

See EN 3280.