



SLOVENSKI STANDARD

SIST EN 3055:2001

01-januar-2001

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

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

Luft- und Raumfahrt - Flugwerklager - Einreihige Tonnenlager aus korrosionsbeständigem Stahl - Maße und Belastungen

Série aérospatiale - Roulements pour structures d'aéronefs - Roulements en acier résistant à la corrosion, à rotule, sur une rangée de rouleaux - Dimensions et charges

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Ta slovenski standard je istoveten z: EN 3055:1994

ICS:

49.035	Sestavni deli za letalsko in vesoljsko gradnjo	Components for aerospace construction
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SIST EN 3055:2001

en

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EUROPEAN STANDARD

EN 3055

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 1994

UDC 629.7.02:621.822.8.004.1:621.828:669.14.018.89

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 - Dimensions and loads**

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Série aérospatiale - Roulements pour structures
d'aéronefs - Roulements en acier résistant à la
corrosion, à rotule, sur une rangée de rouleaux
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korrosionsbeständigem Stahl - Maße und
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This European Standard was approved by CEN on 1994-04-27. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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 October 1994, and conflicting national standards shall be withdrawn at the latest by October 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 STANDARDS

1 Scope

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

They are intended for use in bell crank lever ends or at the end of rigid flight control rods for transmission purposes, before or after servo operation.

The airframe rolling bearings defined in this standard are used from $-54\text{ }^{\circ}\text{C}$ to $+150\text{ }^{\circ}\text{C}$.

However, being lubricated with the following greases :

- very high pressure grease, ester type (code A), operational range $-73\text{ }^{\circ}\text{C}$ to $+121\text{ }^{\circ}\text{C}$ or
- very high pressure grease, synthetic hydrocarbons, general purpose (code B), operational range $-54\text{ }^{\circ}\text{C}$ to $+177\text{ }^{\circ}\text{C}$ (see EN 3280),

their field of application when lubricated with code A grease is limited to $+121\text{ }^{\circ}\text{C}$.

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 1132 Rolling bearings - Tolerances - Definitions
- EN 2030 Steel FE-PM43 - Hardened and tempered - Bars $D \leq 150\text{ mm}$ - Aerospace series 1)
- EN 2226 Steel FE-PM43 - Hardened and tempered - Hand and die forgings $D_e \leq 150\text{ mm}$ - Aerospace series 1)
- EN 3280 Aerospace series - Bearings, airframe rolling, rigid or self-aligning - Technical specification

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3 Definition

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

Shielded bearing : full complement of rollers (without cage). [EN 3280]

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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_{oa} = radial runout of assembled bearing outer ring
- $F_a \text{ max.}$ = 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) Published as AECMA Standard at the date of publication of this standard.

5 Required characteristics

5.1 Dimensions - Tolerances - Clearances - Loads - Mass

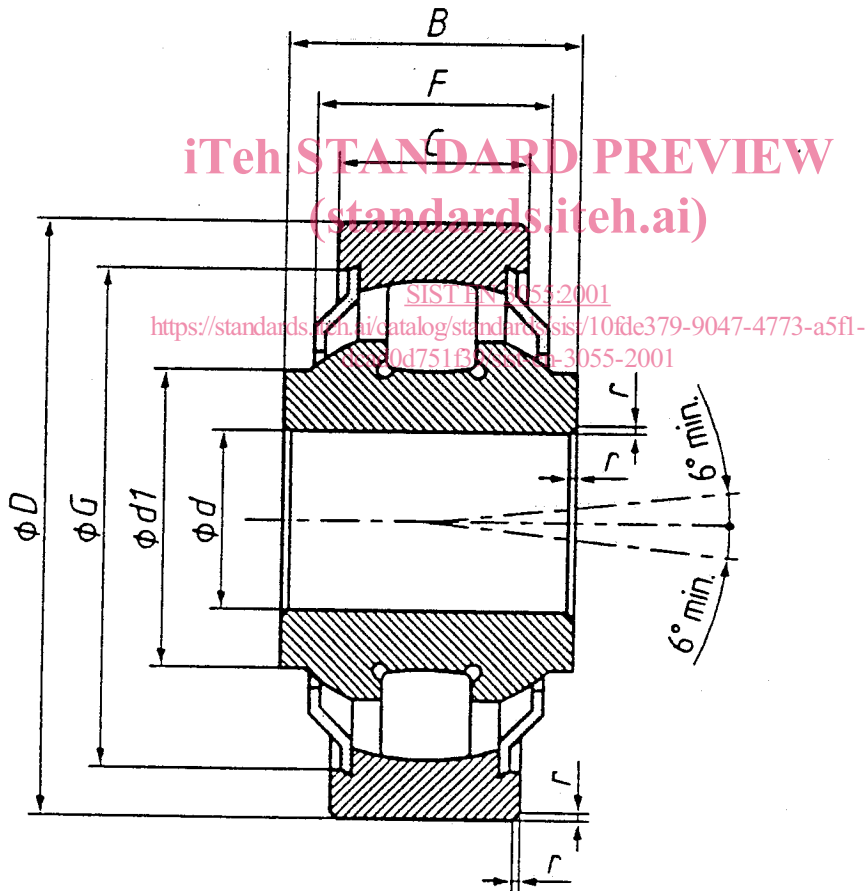
Configuration : see figure 1 ; the bearings are fitted with shields (code P).
Values : see table 1.

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 2226, ≥ 58 HRC
Rollers : EN 2030, ≥ 58 HRC
Shields : Corrosion resisting material.



NOTE : The installation of 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. 2)	max. 2)	Δ_{dmp}	Δ_{Dmp}	Δ_{ds}	Δ_{Ds}						
06	6	12	8	24	11,9	10	20,5	0 - 8	0 - 9	+ 2 - 10	+ 2 - 11	0,3 to 0,8	21				
08	8	15	10	26	12,3	13	22										37
08 ¹⁾	8			30	14,3	12	25										49
10	10	16	12	35	16,9	13	29										70
10 ¹⁾	10	20				17			33,5							72	
12	12	24	13	40	19,9	20	40		0 - 11	+ 3 - 11	+ 3 - 14				108		
15	15		14	47	23,9										40		
17	17	15		47	25,9	20	41								163		

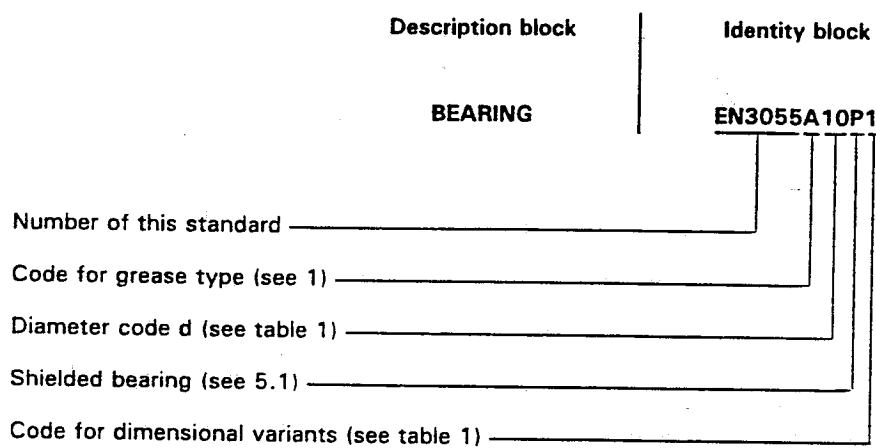
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d Code	Internal clearances μm		Radial runout tolerances max. μm		Starting torque ³⁾ in mN.m	Permissible static loads ⁴⁾ kN	
	Axial max. G_a	Radial G_r	K_{ja}	K_{ea}		Axial F_a max.	Radial C_s
06	180	2 to 6	25	40	6	4,8	15,9
08	210	2 to 7			8	6,9	22,8
08 ¹⁾					12	8,4	27,8
10					16	10	32,9
10 ¹⁾					20	13,6	45
12		25			16,4	54,2	
15		3 to 9			21	69,4	
17	30						

- 1) In the designation add code 1 to the end of the identity block.
- 2) Dimensions of the shields are at the manufacturer's option within the limits of F and G.
- 3) Definition, see EN 3280.
- 4) $F_r + 3,3 F_a = P_{Or}$; 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.