

5 YfcbUj h_U! ? cHUb]`YyU]`nU`YHUU!`9bcfYXb]`y`YVUgh]`fc[`] b]`YyU]`]n
_cfcn]`g_c`cXdcfbY[U`Y_`Uzn`YbcgfUbg_c`dcXU`yUb]a `bcfUo]a `cVfc Ya `]b
gUa cbUgHj`]j c`df]fcVb]Vt`!`A YfY]b`bcg]`bcg]`

Aerospace series - Bearings, airframe rolling - Rigid single row ball bearings in corrosion resisting steel, with extended inner ring and flanged alignment bush - Dimensions and loads

iTeh STANDARD PREVIEW

Luft- und Raumfahrt - Flugwerkklager - Einreihige Rillenkugellager aus korrosionsbeständigem Stahl mit einseitig verlängertem Innenring und selbsteinstellendem Flansch - Maße und Belastungen

[SIST EN 4041:2009](https://standards.iteh.ai/catalog/standards/sist/53ba16dd-2a5b-437d-8d92-)

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Série aérospatiale - Roulements pour structures d'aéronefs - Roulements en acier résistant à la corrosion, rigides, à une rangée de billes, avec bague intérieure à jupe et bague d'alignement à collerette - Dimensions et charges

Ta slovenski standard je istoveten z: EN 4041:2006

ICS:

49.035

Sestavni deli za letalsko in
vesoljsko gradnjoComponents for aerospace
construction**SIST EN 4041:2009****en,de**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 4041

June 2006

ICS 49.035

English Version

Aerospace series - Bearings, airframe rolling - Rigid single row ball bearings in corrosion resisting steel, with extended inner ring and flanged alignment bush - Dimensions and loads

Série aéronautique - Roulements pour structures d'aéronefs
- Roulements en acier résistant à la corrosion, rigides, à une rangée de billes, avec bague intérieure à jupe et bague d'alignement à collerette - Dimensions et charges

Luft- und Raumfahrt - Flugwerkklager - Einreihige Rillenkugellager aus korrosionsbeständigem Stahl mit einseitig verlängertem Innenring und selbststellendem Flansch - Maße und Belastungen

This European Standard was approved by CEN on 20 April 2006.

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.

This European Standard exists 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard (EN 4041:2006) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-STAN).

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

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 2006, and conflicting national standards shall be withdrawn at the latest by December 2006.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 4041:2006 (E)

1 Scope

This standard specifies the characteristics of rigid single row ball bearings in corrosion resisting steel with an extended inner ring and a solid or lightweight flanged alignment bush, designed to withstand only slow rotations and slight oscillations under load.

They are intended for use in airframe fixed and moving elements and in flight control linkages.

The bearings defined in this standard shall be used in the temperature range from -54 °C to 150 °C .

However, as they are lubricated with the following greases (see EN 3727):

- ester type very high pressure grease (code letter A), operating range from -73 °C to 121 °C or,
- synthetic hydrocarbons type very high pressure grease general purpose (code letter B) operating range from -54 °C to 177 °C .

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

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1132-1, *Rolling bearings — Tolerances — Part 1: Terms and Definitions*.

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

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 2424, *Aerospace series — Marking of aerospace products*.

EN 2502, *Steel FE-PM66 — $930 \leq R_m \leq 1\ 080\text{ MPa}$ — Bars $D_e \leq 150\text{ mm}$ — Aerospace series*.¹⁾

EN 2503, *Steel FE-PM66 — $930 \leq R_m \leq 1\ 080\text{ MPa}$ — Forgings — $D_e \leq 150\text{ mm}$ — Aerospace series*.¹⁾

EN 2539²⁾, *Aerospace series — Steel FE-PM3801(X5CrNiCu17-4) — Air melted — Solution treated and precipitation treated - Bar — a or $D \leq 200\text{ mm}$ — $R_m \geq 965\text{ MPa}$* .³⁾

EN 3161, *Aerospace series — Steel FE-PM3801 (X5CrNiCu17-4) — Air melted — Solution treated and precipitation treated — Bar — a or $D \leq 200\text{ mm}$ — $R_m \geq 930\text{ MPa}$* .³⁾

EN 3727, *Aerospace series — Bearings, airframe rolling rigid with flanged alignment housing — Dimensions and mass*.

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

2) Inactive for new design, see EN 3161.

3) Published as AECMA Prestandard at the date of publication of this standard.

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in ISO 1132-1 and the following apply.

3.1

bearing

full complement of balls (without retainer), with filling slot

4 Symbols and abbreviations

Δ_{dmp}	=	single plane mean bore diameter deviation
Δ_{ds}	=	deviation of a single bore diameter
C_s	=	permissible static radial load
$F_{a \text{ max.}}$	=	permissible static axial load
G_a	=	axial internal clearance
G_r	=	radial internal clearance
S_{ia}	=	assembled bearing inner ring face runout with raceway
S_{ea}	=	assembled bearing outer ring face runout with raceway
K_{ia}	=	radial runout of assembled bearing inner ring
K_{ea}	=	radial runout of assembled bearing outer ring

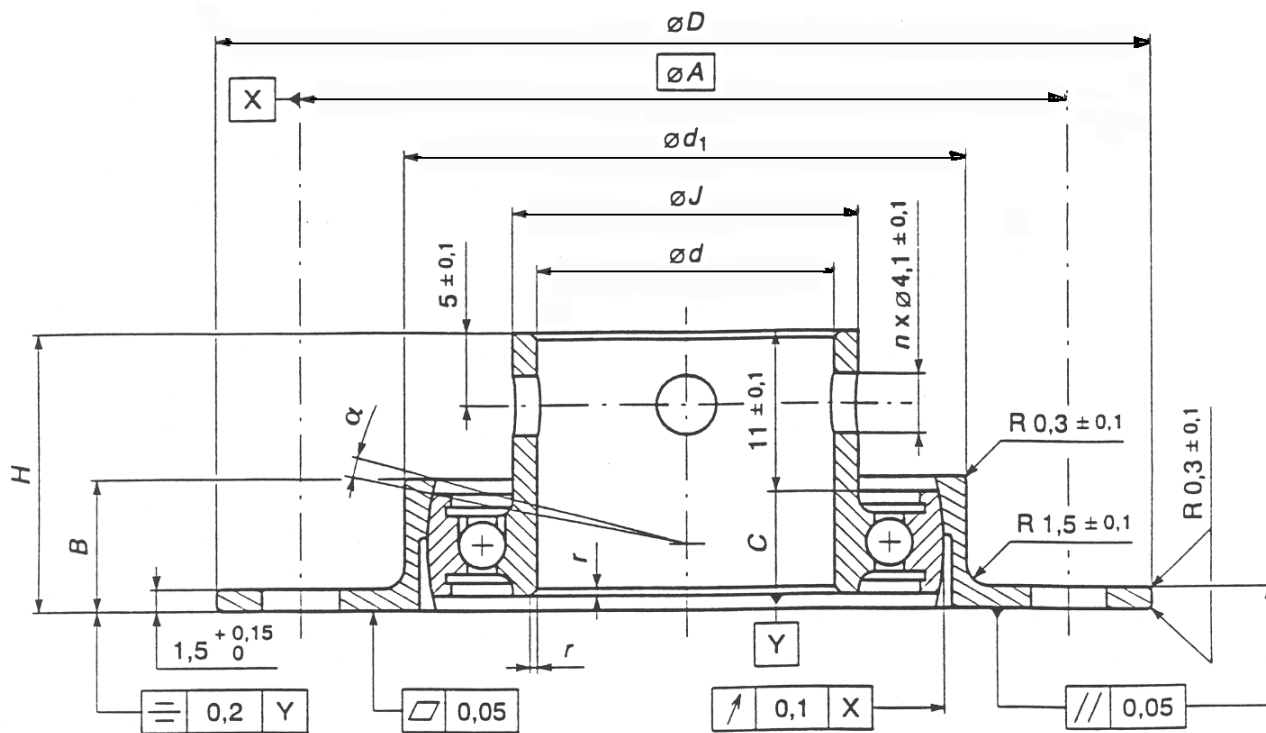
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5 Required characteristics

5.1 Configuration, dimensions, tolerances, clearances, torques and masses

Configuration and values: according to Figures 1 to 4 and Table 1; the bearings are fitted either with seals or shields; the flanged alignment bush is either solid or lightweight.

The dimensions and tolerances are expressed in millimetres and apply after surface treatment.



^a In both positions at 180° from the bearing

NOTE Break sharp edges 0,1 to 0,4; the edges of spherical surfaces shall be carefully rounded off.

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Figure 1

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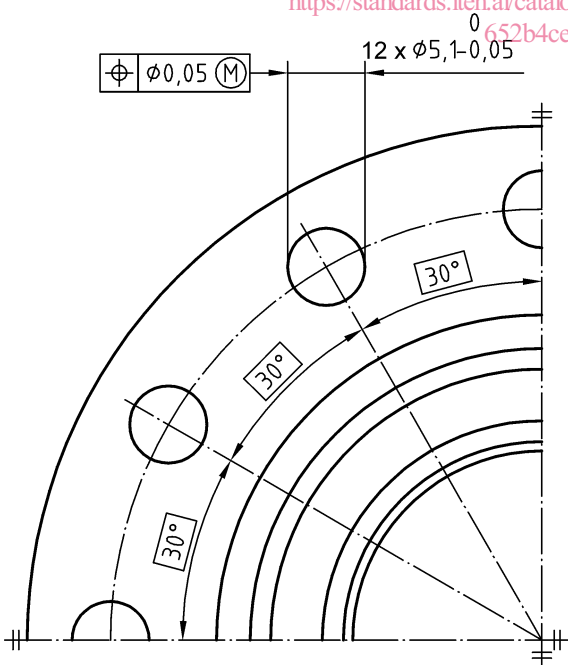
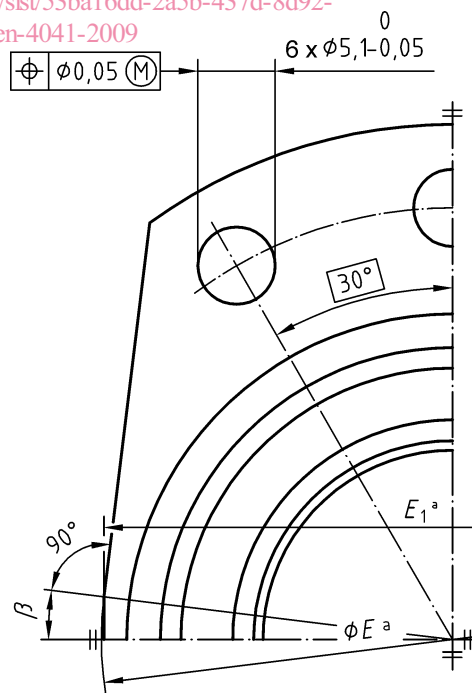
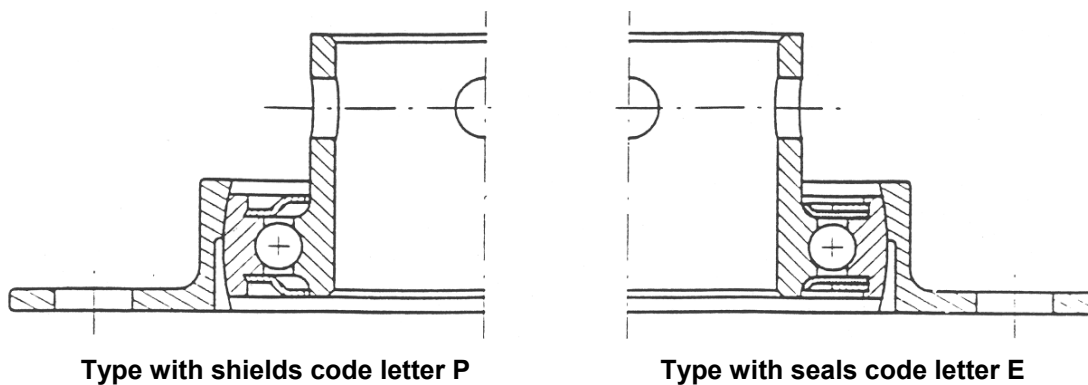


Figure 2 — Solid flanged alignment bush, code letter C



^a Transition area at the manufacturer's discretion

Figure 3 — Lightweight flanged alignment bush, code letter D



NOTE 1 Installation of seals and shields is at the manufacturer's option.

NOTE 2 The shields shall not extend beyond width C .

Figure 4

Table 1

d		Tolerances μm		A	B	C	D	d_1	E	E_1	J	H	n	r	α	β
Code number	nom.	Δ_{dmp}	Δ_{ds}	nom.	$\pm 0,15$	0 $-0,12$	$\pm 0,2$	$\pm 0,05$	± 1	± 1	0 $-0,1$	$\pm 0,15$	Number of holes		min. ^a	$\pm 1^\circ$
32	32	0 -12	+3 -15	66			77	52	56	55	35	19	4	0,3 to 0,8	2°30'	12°
35	35			69			80	55	59	58	38				2°20'	
40	40			75			86	61	66	64	43					
45	45			80	10	8	91	66	71	68	48	20			2°	15°
50	50			86			97	72	77	74	53				1°40'	
63	63	0 -15	+4 -19	100	11	9	111	86	97	90	67	21	6		1°30'	22°

d Code number	Internal clearances ^b		Runout tolerances ^b				Tilting torque N.m	Starting torque ^b		Masses g/pieces	
	μm		max. μm					Code letter P	Code letter E	Code letter C	Code letter D
	Axial max. G_a	Radial G_r	Axial S_{ia}	Sea S_{ea}	Radial K_{ia}	Kea K_{ea}					
32	120	2 to 7	40	40	25	40	1 to 4	21	30	107	91
35								27	35	125	97
40								1,3 to 4,5	33	44	143
45		2 to 9					39		53	155	136
50							48		68	175	152
63							2 to 6	83	113	235	205

^a Maximum values for the user.

^b See EN 3727.