



SLOVENSKI STANDARD

oSIST prEN 2588:2023

01-september-2023

Aeronavtika - Ležaj, krogelni, drsni, iz korozijsko odpornega jekla z utorom - Mere in nosilnosti

Aerospace series - Bearing, spherical plain in corrosion resisting steel with assembly slots - Dimensions and loads

Luft- und Raumfahrt - Gelenklager aus korrosionsbeständigem Stahl mit Einführnut - Maße und Belastungen

Série aéronautique - Rotule lisses en acier résistant à la corrosion avec encoches d'assemblage - Dimensions et charges

Ta slovenski standard je istoveten z: prEN 2588

ICS:

49.035

Sestavni deli za letalsko in vesoljsko gradnjo

Components for aerospace construction

oSIST prEN 2588:2023

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 2588

July 2023

ICS 49.035

Will supersede EN 2588:2006

English Version

Aerospace series - Bearing, spherical plain in corrosion resisting steel with assembly slots - Dimensions and loads

Série aérospatiale - Rotule lisses en acier résistant à la
corrosion avec encoches d'assemblage - Dimensions et
charges

Luft- und Raumfahrt - Gelenklager aus
korrosionsbeständigem Stahl mit Einführnut - Maße
und Belastungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 2588:2023) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 2588:2006.

prEN 2588:2023 includes the following significant technical changes with respect to EN 2588:2006:

- normative references updated;
- Subclause 5.4 “Materials”: hardness requirement for the outer ring corrected;
- document editorially revised.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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prEN 2588:2023 (E)**1 Scope**

This document specifies the characteristics of spherical plain bearings in corrosion resisting steel, with assembly slots, metric series, with or without lubrication holes and groove, intended for use in fixed or moving parts of aircraft structure and control mechanisms, within the temperature range from -54 °C to 150 °C .

It also applies to the following temperature ranges when lubricated with the following greases (see EN 2337):

- ester type very high pressure grease (code letter A), operating range from -73 °C to 121 °C or
- synthetic hydrocarbon 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 grease code letter A is limited to 121 °C .

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 2030, *Aerospace series - Steel X105CrMo17 (1.3544) - Hardened and tempered - Bars - $D_e \leq 150\text{ mm}$*

EN 2337, *Aerospace series - Spherical plain bearings - Technical specification*

EN 2424, *Aerospace series - Marking of aerospace products*

EN 2491, *Aerospace series - Molybdenum disulphide dry lubricants - Coating methods*

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

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

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Symbols and abbreviations

The following symbols for tolerances are used:

Δ_d single plane mean bore diameter deviation

mp

Δ_{Ds} deviation of a single bore diameter

Δ_D single plane mean outside diameter deviation

mp

Δ_{Ds} deviation of a single outside diameter

α angle of tilt of the outer ring with respect to the inner ring, the spherical surface of the outer ring being completely in contact with the inner ring

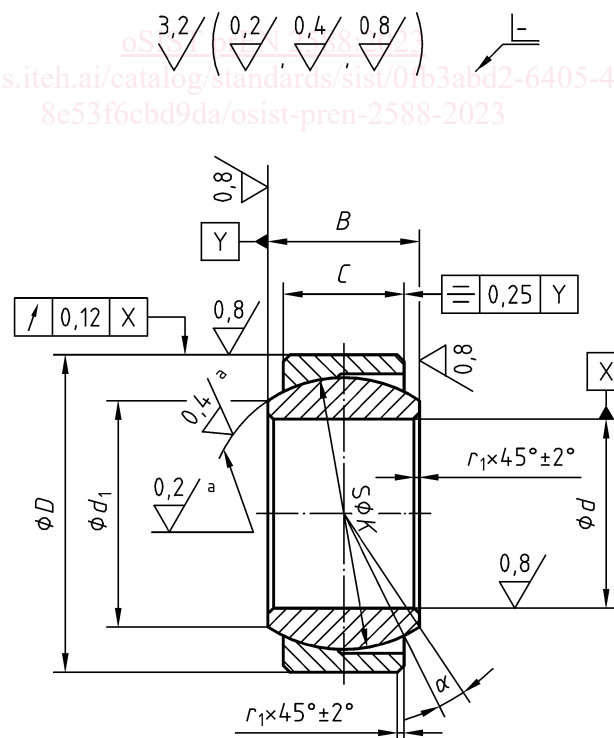
5 Required characteristics

5.1 Configuration, dimensions and masses

Configuration, dimensions and masses shall be according to Figure 1, Figure 2, Table 1 and Table 2. The dimensions are expressed in millimetres and apply after surface treatment.

5.2 Surface roughness

Surface roughness shall be according to Figure 1. The values are expressed in micrometres and apply before surface treatment.

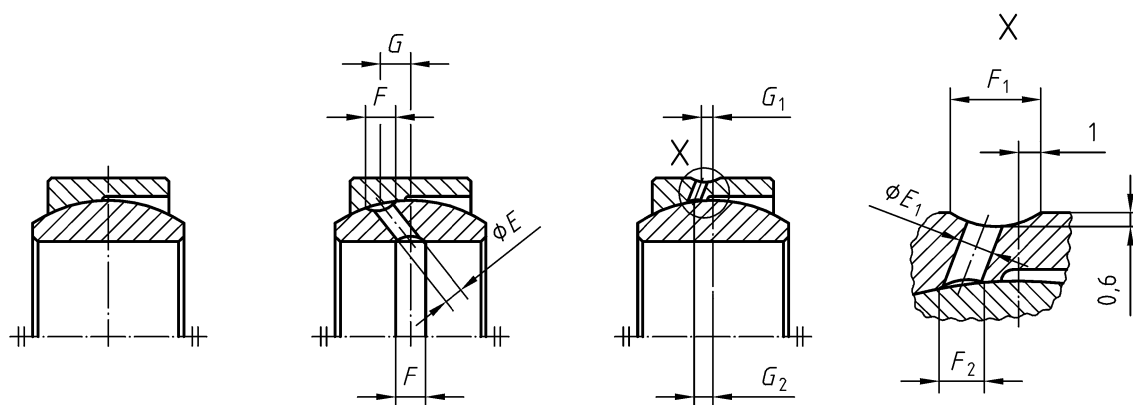


Key

- a 0,4 for spherical surface with dry-film lubricant; 0,2 for non-coated surface

Figure 1 — Configuration

prEN 2588:2023 (E)

**Code letter E:**

Bearing without
lubrication holes and
groove

Code letter F:

Bearing with
lubrication holes and
groove on inner ring

Code letter G:

Bearing with lubrication holes and
groove on outer ring

Figure 2 — Lubrication holes and grooves code letter

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Table 1 — Dimensions and masses

Code number	d nom.	B ${}^0_{-0,06}$	C ${}^0_{-0,25}$	D	Tolerances μm				d_1 min.	K \approx	r_1	r_2	α $^\circ$ min. ^a	Mass g \approx
					Δdmp	Δds	ΔDmp	ΔDs						
05	5	6	4	14	${}^0_{-8}$	${}^{+2}_{-10}$	${}^0_{-8}$	${}^{+5}_{-13}$	8	10	0,3 to 0,6	0,4 to 0,7	13	4
06	6			16										
08	8	8	5	16	${}^0_{-8}$	${}^{+3}_{-11}$	${}^0_{-9}$	${}^{+6}_{-15}$	10	13	0,5 to 0,8	0,5 to 0,8	15	7
10	10	9	6	19										
12	12	10	7	22	${}^0_{-8}$	${}^{+3}_{-11}$	${}^0_{-9}$	${}^{+6}_{-15}$	15	18	0,5 to 0,8	0,6 to 1	11	15
15	15	12	9	26										
17	17	14	10	30	${}^0_{-10}$	${}^{+3}_{-13}$	${}^0_{-11}$	${}^{+8}_{-19}$	20	25	0,7 to 1,1	0,9 to 1,3	10	44
20	20	16	12	35										
25	25	20	16	42	${}^0_{-10}$	${}^{+3}_{-13}$	${}^0_{-11}$	${}^{+8}_{-19}$	24	29	0,7 to 1,1	0,9 to 1,3	9	60
30	30	22	18	47										
35	35	25	20	55	${}^0_{-12}$	${}^{+3}_{-15}$	${}^0_{-13}$	${}^{+10}_{-23}$	29	36	0,7 to 1,1	0,9 to 1,3	7	105
40	40	28	22	62										
45	45	32	25	68	${}^0_{-12}$	${}^{+3}_{-15}$	${}^0_{-13}$	${}^{+10}_{-23}$	34	41	0,7 to 1,1	0,9 to 1,3	6	145
50	50	35	28	75										
60	60	44	36	90	${}^0_{-15}$	${}^{+4}_{-19}$	${}^0_{-15}$	${}^{+13}_{-28}$	39	47	1,2 to 1,7	1,4 to 1,8	7	210
45	45	32	25	68										
50	50	35	28	75	${}^0_{-15}$	${}^{+4}_{-19}$	${}^0_{-15}$	${}^{+13}_{-28}$	45	53	1,2 to 1,7	1,4 to 1,8	6	285
60	60	44	36	90										
70	70	49	40	105	${}^0_{-15}$	${}^{+4}_{-19}$	${}^0_{-15}$	${}^{+13}_{-28}$	50	60	1,2 to 1,7	1,4 to 1,8	6	420
50	50	35	28	75										
60	60	44	36	90	${}^0_{-15}$	${}^{+4}_{-19}$	${}^0_{-15}$	${}^{+13}_{-28}$	55	66	1,2 to 1,7	1,4 to 1,8	6	515
70	70	49	40	105										
80	80	55	45	120	${}^0_{-15}$	${}^{+4}_{-19}$	${}^0_{-15}$	${}^{+13}_{-28}$	66	80	1,2 to 1,7	1,4 to 1,8	6	1 050
70	70	49	40	105										
80	80	55	45	120	${}^0_{-15}$	${}^{+4}_{-19}$	${}^0_{-15}$	${}^{+13}_{-28}$	77	92	1,2 to 1,7	1,4 to 1,8	6	1 510
80	80	55	45	120										
80	80	55	45	120	${}^0_{-15}$	${}^{+4}_{-19}$	${}^0_{-15}$	${}^{+13}_{-28}$	88	105	1,2 to 1,7	1,4 to 1,8	6	2 250
80	80	55	45	120										

^a Maximum values for the user

Table 2 — Dimensions of lubrication holes and grooves

Code number	d nom.	E^a	E_1^a	F	F_1	F_2	G	G_1	G_2	
		$\pm 0,2$	$\pm 0,2$	$\pm 0,2$	$\pm 0,2$	$\pm 0,2$	$\begin{matrix} +0,1 \\ 0 \end{matrix}$	$\begin{matrix} +0,1 \\ 0 \end{matrix}$	$\begin{matrix} +0,1 \\ 0 \end{matrix}$	
05	5	Without lubrication holes and groove								
06	6									
08	8									
10	10									
12	12									
15	15	1,5	1,5	2,8	3	2	2,2	1	1,75	
17	17	2		2,9			2,5		2	
20	20			4			3			
25	25	2,5	2	4	4	2,5	4	1,5	2,5	
30	30						4,5		3	
35	35						5		3,5	
40	40						5,5		4	
45	45						6,2		3,5	
50	50	3	3	5	5	3	7	2	4	
60	60			4,5			6	9	2,5	5
70	70			8			4	10	3,5	5,5
80	80	4	5	12	7,5					

^a Three holes at intervals of 120° on the periphery.