BS EN 6029:2017

BSI Standards Publication

Aerospace series — Rod-ends, adjustable, single fork with UNJ threaded shank min. engagement: 1,5 x thread diameter in corrosion resisting steel — Dimensions and loads — Inch series

bsi.

National foreword

This British Standard is the UK implementation of EN 6029:2017.

The UK participation in its preparation was entrusted to Technical Committee ACE/12, Aerospace fasteners and fastening systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Date	Text affected

EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 6029

January 2017

ICS 49.035

English Version

Aerospace series - Rod-ends, adjustable, single fork with UNJ threaded shank min. engagement: 1,5 x thread diameter in corrosion resisting steel - Dimensions and loads - Inch series

Série aérospatiale - Embouts réglables a chape simple a tige filetée UNJ, implantation min. : 1,5 x diamètre de filetage en acier résistant à la corrosion - Dimensions et charges - Série en inches

Luft- und Raumfahrt - Einstellbare Gabelköpfe, einfach, UNJ-Gewindeschaft, min. Einschraubtiefe 1,5 x Gewindedurchmesser, aus korrosionsbeständigem Stahl - Maße und Belastungen - Inch-Reihe

This European Standard was approved by CEN on 20 August 2016.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 6029:2017) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-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 ASD, 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of an identical text or by endorsement, at the latest by July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

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1 Scope

This European Standard specifies the characteristics of adjustable rod ends in corrosion resisting steel, inch series, consisting of:

— a single fork ;

— a UNJ threaded shank with ;
  — min. engagement 1,5 times thread diameter and
  — longitudinal groove for locking purposes.

These rod ends are intended for use with control rods or rods for aerospace structures.

They shall be used in the temperature range – 54 °C and 150 °C.

2 Normative references

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

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

EN 2601, *Aerospace series — Fork ends, adjustable — Technical specification*

EN 3161, *Aerospace series — Steel FE-PM3801 (X5CrNiCu17-4) — Air melted, solution treated and precipitation treated, bar a or D ≤ 200 mm, $R_m \geq 930$ MPa*

ISO 3161:1999, *Aerospace — UNJ threads — General requirements and limit dimensions*

ISO 3353-1:2002, *Aerospace — Lead and runout threads — Part 1: Rolled external threads*

ISO 8074, *Aerospace — Surface treatment of austenitic stainless steel parts*

NAS 559, *Rod End Lock* [1)]

3 Required characteristics

3.1 Configuration – Dimensions – Tolerances – Masses

See Figure 1 and Table 1.

Dimensions and tolerances are expressed in millimetres (inches) and apply after passivation.

3.2 Surface roughness

See Figure 1. Values in micrometres (microinches) apply before passivation.

3.3 Materials

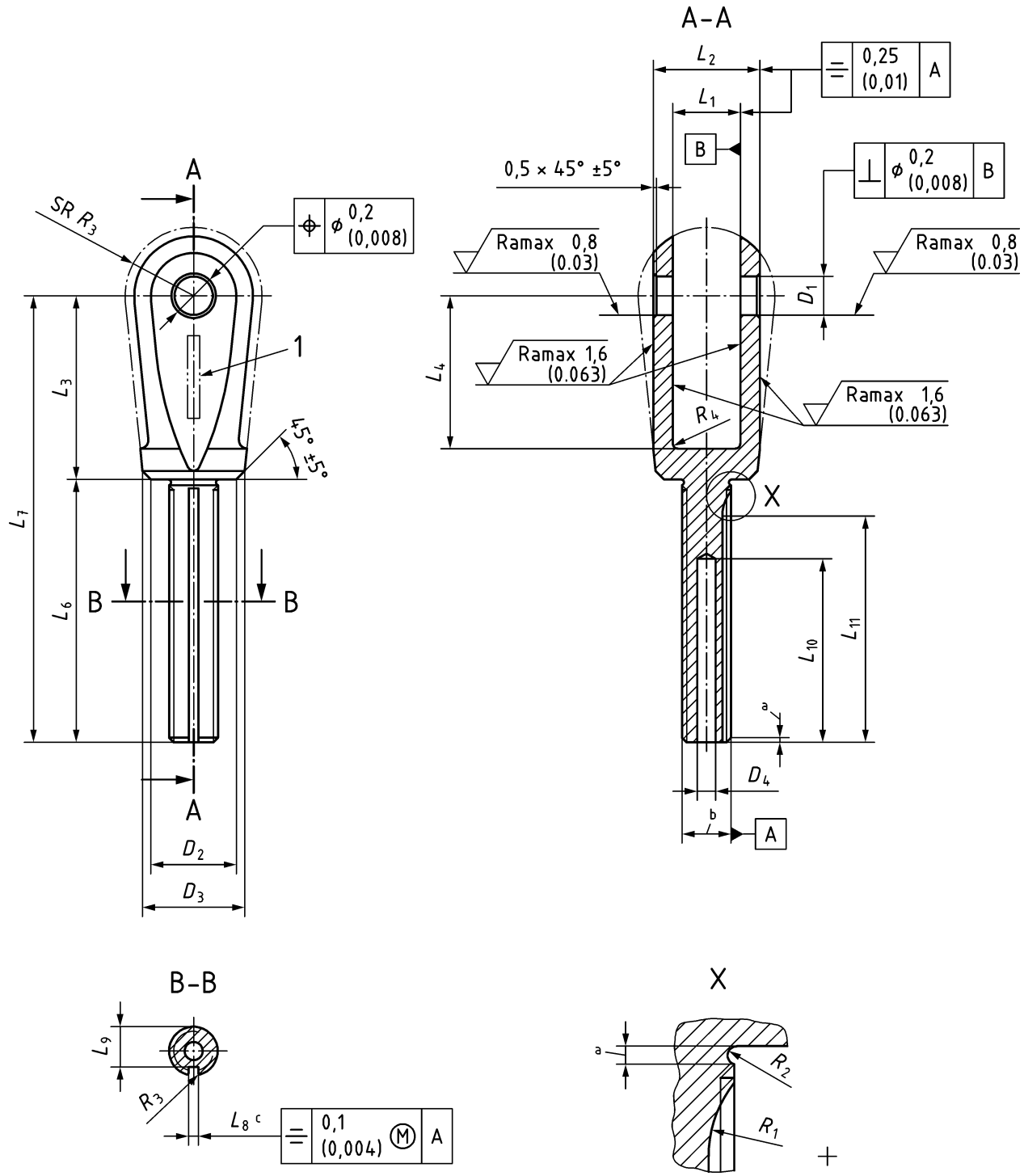
Steel EN 3161: 34 HRC to 42 HCR.

3.4 Surface treatment

Passivated according to ISO 8074.

Break sharp edges and corners and remove all burrs and slivers.

1) Published by: Aerospace Industries Association of America, Inc., 1250 Eye street, NW Washington, DC 20005, USA.



Key

R_3 $^{0,10}_{(0.004)}$ max.

1 Marking

a Thread run-out according to ISO 3353-1

b Pitch - Ø

c Groove as per NAS 559

Figure 1 — Configuration

Concentricity of 0,25 (0.01) between D_4 axis and A where "A" is the axis of the thread pitch diameter.

Table 1 — Dimensions, tolerances and mass (*1 of 3*)

Size code	Shank								
	Type of thread UNJF-3A according to ISO 3161	$ØD_4$ 0 − 0,3 (0.00 − 0.01)	L_6 + 1,0 0, (+ 0.04 0.00)	L_8 + 0,10 0 (+ 0.004 0.000)	L_9 0 − 0,10 (0.000 − 0.004)	L_{10} ± 0,5 (± 0.02)	L_{11} ± 0,5 (± 0.02)	R_1 ± 0,25 (± 0.010)	R_2
01	0.2500-28	–	33,0 (1.30)	1,60 (0.063)	5,11 (0.201)	–	27,0 (1.06)	6,48 (0.255)	0,5 to 0,8 (0.02 to 0.03)
02									
03									
10	0.3125-24		43,0 (1.69)		6,60 (0.260)		37,0 (1.46)		
11									
20	0.3750-24		51,5 (2.03)	2,40 (0.094)	7,90 (0.311)		45,5 (1.79)		
21									
22									
30	0.5000-20	4,0 (0.16)	58,0 (2.28)		11,07 (0.436)	50,0 (1.97)	52,0 (2.05)		
31									
40	0.5625-18		65,0 (2.56)	3,20 (0.126)	12,14 (0.478)	57,0 (2.24)	59,0 (2.32)		
41									
50	0.6250-18	6,0 (0.24)	69,0 (2.72)		13,70 (0.539)	61,0 (2.40)	61,5 (2.48)		
51									
60	0.7500-16	8,0 (0.31)	76,0 (2.99)		16,80 (0.661)	68,0 (2.68)	70,0 (2.76)		

Table 1 — Dimensions, tolerances and mass (*2 of 3*)

Size code	Fork									
	$ØD_1$	$ØD_2$	$ØD_3$	L_1	L_2	L_3	L_4	L_5	R_3	R_4
		± 0,3	± 0,25	+ 0,10 0	+ 0,20 0		+ 0,25 0	+ 0,20 0	+ 0,20 0	+ 1,0 0
	J7	(± 0.01)	(± 0.01)	(+ 0.004 0.000)	(+ 0.008 0.000)		(+ 0.010 0.000)	(+ 0.008 0.000)	(+ 0.01 0.00)	(+ 0.04 0.00)
01	4,826 (0.1900)	12,0 (0.47)	14,25 (0.559)	7,15 (0.281)	12,70 (0.500)	30,0 (1.18)	25,00 (0.984)	0,50 (0.020)	8,7 (0.34)	2,0 (0.08)
02		16,0 (0.63)	19,00 (0.748)	12,70 (0.500)	19,00 (0.748)	34,0 (1.34)	30,00 (1.181)		11,2 (0.44)	
03	6,350 (0.2500)	12,0 (0.47)	14,50 (0.571)	8,70 (0.343)	14,00 (0.551)	30,0 (1.18)	25,00 (0.984)			
10										
11		14,0 (0.55)	16,70 (0.657)	11,10 (0.437)	16,70 (0.657)					
20		12,0 (0.47)	14,00 (0.551)	9,00 (0.354)	14,00 (0.551)	28,0 (1.10)	23,00 (0.906)			
21		20,0 (0.79)	23,80 (0.937)	17,50 (0.689)	23,80 (0.937)	41,0 (1.61)	35,00 (1.378)		14,3 (0.56)	3,0 (0.12)
22		14,0 (0.55)	16,70 (0.657)	11,10 (0.437)	16,70 (0.657)	30,0 (1.18)	25,00 (0.984)		11,2 (0.44)	2,0 (0.08)
30		20,0 (0.79)	23,80 (0.937)	17,50 (0.689)	23,80 (0.937)	41,0 (1.61)	35,00 (1.378)		14,3 (0.56)	3,0 (0.12)
31	7,938 (0.3125)	25,0 (0.98)	28,50 (1.122)	20,60 (0.811)	28,50 (1.122)	50,0 (1.97)	44,00 (1.732)		19,4 (0.76)	
40	6,350 (0.2500)	20,0 (0.79)	23,80 (0.937)	17,50 (0.689)	23,80 (0.937)	41,0 (1.61)	35,00 (1.378)		14,3 (0.56)	
41	7,938 (0.3125)	25,0 (0.98)	28,50 (1.122)	20,60 (0.811)	28,50 (1.122)	50,0 (1.97)	44,00 (1.732)		19,4 (0.76)	
50	9,525 (0.3750)	31,0 (1.22)	35,00 (1.378)	23,80 (0.937)	39,90 (1.570)	58,0 (2.28)	51,00 (2.008)	0,80 (0.031)	22,0 (0.87)	
51	12,700 (0.5000)	34,0 (1.34)	38,00 (1.496)	25,40 (1.000)	38,10 (1.500)				24,2 (0.95)	
60	15,875 (0.6250)	47,0 (1.85)	41,00 (1.614)	28,60 (1.126)	41,20 (1.622)	67,0 (2.64)	59,00 (2.323)	1,00 (0.039)	27,7 (1.09)	4,0 (0.16)

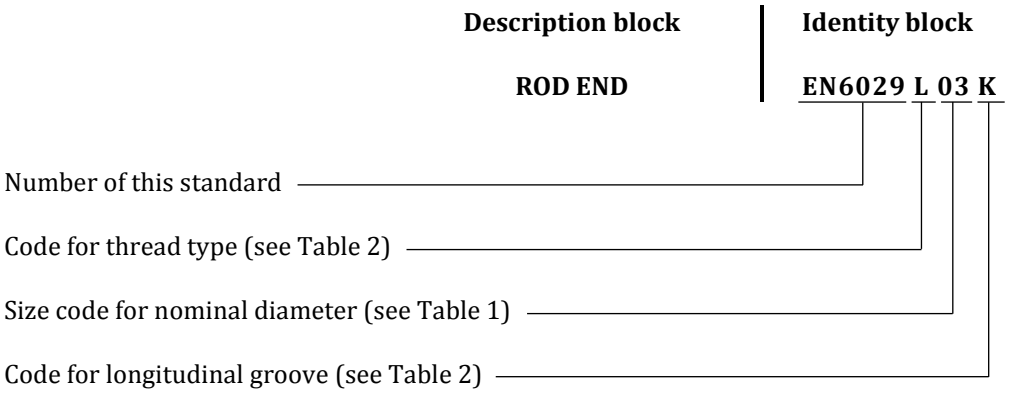
Table 1 — Dimensions, tolerances and mass (*3 of 3*)

Size code	Rod end			
	L_7 +1,0 0 (+0.04 0.00)	Permissible (limit) static load kN [a]	Ultimate static load kN [a]	Mass g
01	63,0 (2.48)	8,3	12,5	29
02	67,0 (2.64)	9,0	13,5	40
03	63,0 (2.48)			34
10	73,0 (2.87)	13,3	20,0	40
11				42
20	79,5 (3.13)	25,8	38,7	45
21	92,5 (3.64)			78
22	81,5 (3.21)			58
30	99,0 (3.90)			97
31	108,0 (4.25)	32,3	48,5	164
40	106,0 (4.17)	25,8	38,7	114
41	115,0 (4.53)	43,0	64,5	173
50	127,0 (5.00)	48,0	72,0	276
51		49,3	74,0	319
60	143,0 (5.63)	68,7	103,0	434

[a] Definition and testing as per EN 2601.

4 Designation

EXAMPLE



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

Table 2 — Code for thread type and longitudinal groove

Code	Thread type and longitudinal groove
L	Left-hand thread
R	Right-hand thread
K	with longitudinal groove
T	without longitudinal groove

5 Marking

Each rod end shall be marked at least in accordance with EN 2424, style A. In addition, the rod end may be marked with manufacturer's part number.

Marking position see Figure 1, method are at manufacturer's option.

6 Technical specification

EN 2601.

Annex A
(informative)

Standard evolution form

The main changes with respect to the previous editions prEN 6029:1998-08 P1 are listed in Table A.1.

Table A.1 — Main changes to previous editions

prEN/EN Number	Edition	Publication Date	Modification	Reason and validation
EN 6029	P1	08/1998	Size code 22 added in Table 1.	D3S1 member request
			r_1 changes to R_3, r_2 changes to R_4 in Figure 1 and Table 1.	D3S1 member request
			German title changed from "Zöllige Reihe" into "Inch-Reihe"	Wrong translation
			Scope; temperatures without +	Clarification
			Mentioning part number of ISO 3353-1	Clarification on normative reference
			3.3 hardness 42 HRC instead of HCR	Typing error
			3.4 Figure 1: wording changed into a Thread run-out according to ISO 3353-1	Clarification
			Figure 1: added c groove as per NAS 559	Clarification

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