SLOVENSKI STANDARD
SIST EN 2290-1:2001

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Aerospace series - Rod bodies, flight control in aluminium alloy, for adjustable end fittings - Part 1: Dimensions and loads

Aerospace series - Rod bodies, flight control in aluminium alloy, for adjustable end fittings - Part 1: Dimensions and loads

Luft- und Raumfahrt - Rohrkörper für Flugsteuerungen aus Aluminium-Legierung für einstellbare Stangenköpfe - Teil 1: Maße und Belastungen

Série aérospatiale - Corps de bielles de commandes de vol en alliage d'aluminium pour embouts réglables - Partie 1: Dimensions et charges

Ta slovenski standard je istoveten z: **EN 2290-1:1998**

ICS:

49.025.20	Aluminij	Aluminium
49.035	Sestavni deli za letalsko in vesoljsko gradnjo	Components for aerospace construction

SIST EN 2290-1:2001 **en**

EUROPEAN STANDARD
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EN 2290-1

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ICS 49.035

Descriptors: Aircraft industry, aircraft control, rod body, dimensions, load

English version

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Luft- und Raumfahrt - Rohrkörper für Flugsteuerungen aus Aluminium-Legierung für einstellbare Stangenköpfe - Teil 1: Maße und Belastungen

This European Standard was approved by CEN on 15 May 1998.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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 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 January 1999, and conflicting national standards shall be withdrawn at the latest by January 1999.

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

1 Scope

This standard specifies the characteristics of flight control rod bodies for adjustable end fittings. They may be used within the temperature range of – 55 °C to + 120 °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 5855-2	Aerospace constructions - MJ Thread - Part 2: Limit dimensions for nuts and bolts
EN 2257	Circular structural tubes in aluminium and aluminium alloys - Dimensions - Aerospace series [1]
EN 2289	Aerospace series - Rod bodies, flight controls, in aluminium alloys - Technical specification
EN 2290-2	Aerospace series - Rod bodies flight control in aluminium alloy for adjustable end fittings, with swaged inserts - Dimensions and loads [2]
EN 2435-01	Aerospace series - Paints and varnishes - Corrosion resistant chromated two component cold curing primer - Part 01: Minimum requirements [3]
EN 2436	Primer polyurethane cold curing type [2]
EN 2437	Aerospace series - Chromate conversion coatings yellow for aluminium and aluminium alloys [2]
EN 2510	Aluminium alloy 2024-T42 - Drawn tubes for structural applications - Aerospace series [1]

3 Required characteristics

3.1 Configuration - Dimensions - Tolerances

See figure 1 and tables 1 and 2.
Dimensions and tolerances, in millimetres, apply after chromate treatment but before primer.

3.2 Surface roughness

External surfaces: R_a = 1,6 µm
Internal surfaces: R_a = 3,2 µm

The values apply before chromate treatment.

3.3 Loads

See table 3.

3.4 Buckling strength

See figure 2.

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1) Published as AECMA Standard at the date of publication of this standard.
2) In preparation at the date of publication of this standard.
3) Published as AECMA Prestandard at the date of publication of this standard.

3.5 Masses

The maximum mass, in grammes, is determined by the following formula:

$$M = (M_1 + k) + \frac{M_1 + k}{10}$$

where:

- M is the maximum mass of the rod body, in grammes;
- M_1 is the mass of a cylindrical tube of length ***L***, diameter ***D*** and thickness ***a*** in grammes; see EN 2257;
- k is the coefficient of the increase in mass specific to each rod body, in grammes; see table 1.

3.6 Material

EN 2510

3.7 Internal and external surface treatment

EN 2437 + EN 2435-01, code A

or

EN 2437 + EN 2436, code B

No primer on threads.

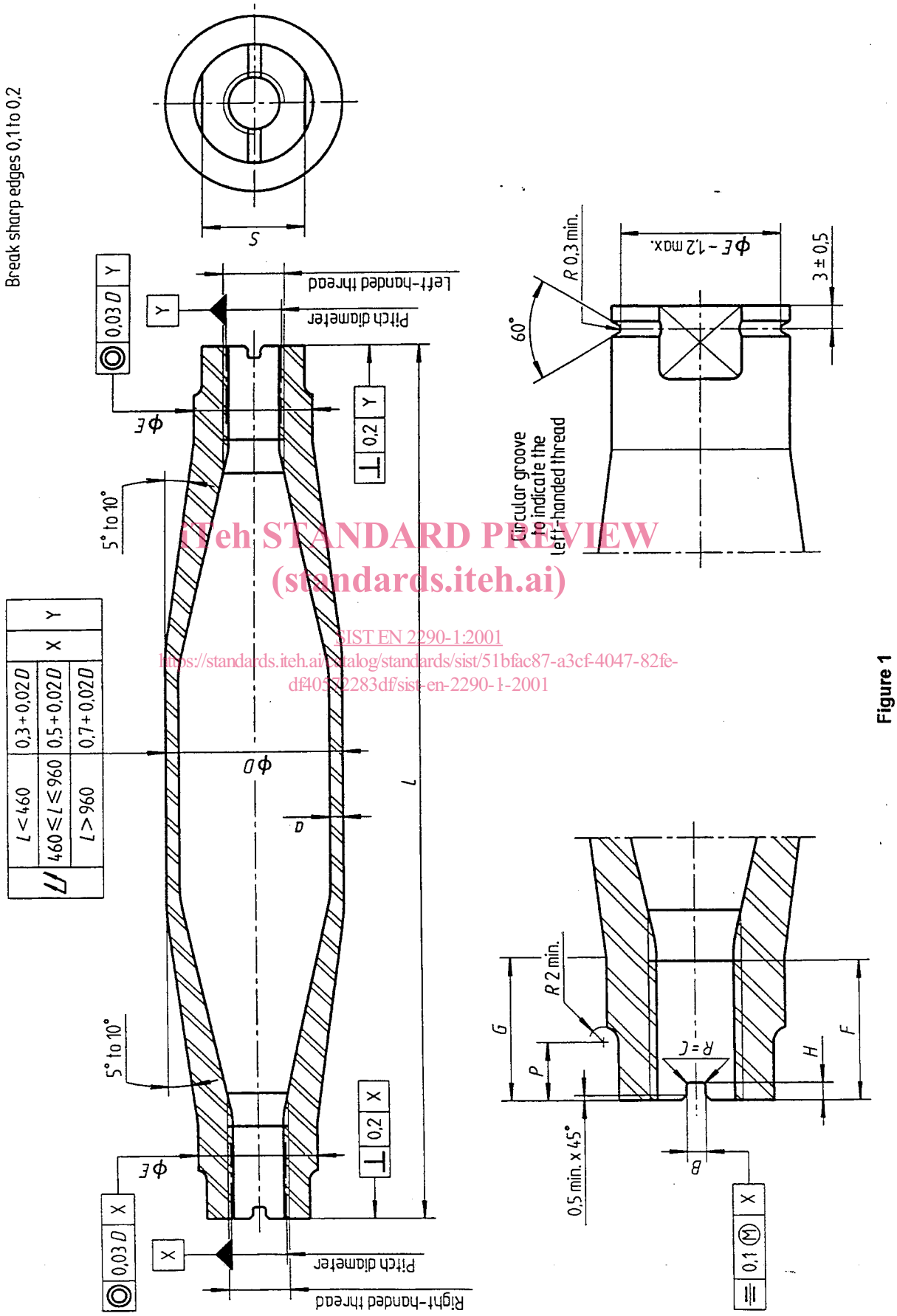

Figure 1

Table 1

Tube code 1)	Thread code *D* 2)	*a* 2)	*T* MJ 8 × 1,00 *L* ± 1 3) 4)	*E* max.	*S* 0 −0,25	*k* g	*V* MJ 10 × 1,25 *L* ± 1 3) 4)	*E* max.	*S* 0 −0,25	*k* g	*W* MJ 12 × 1,25 *L* ± 1 3) 4)	*E* max.	*S* 0 −0,25	*k* g	*Y* MJ 14 × 1,50 *L* ± 1 3) 4)	*E* max.	*S* 0 −0,25	*k* g
AA	12	1	50	11,7	10	7,5												
BA	14	1	70	11,7	10	7,5												
CA	16	1	91	11,7	10	7,5	74	14,4	12	12,5								
CB		1,2	82	12,8	11	10	74	14,4	12	10								
CC		1,6	74	13,5	11	7,5	66	14,4	12	5								
DA	20	1	124	12,6	11	12,5	108	14,4	12	15								
DB		1,2	116	13,5	11	15	108	14,4	12	10								
DC		1,6	108	14,4	12	15	97	15,5	13	10								
EA	25	1					149	15,5	13	30	149	16	14	20				
EB		1,2					145	16	14	30	141	16,8	14	20				
EC		1,6					137	16,8	14	27,5	133	17,7	14	17,5				
ED		2					121	18,5	16	27,5	117	19,3	17	22,5				
FA	28	1					181	15,5	13	40	173	16,8	14	30	158	19,3	17	10
FB		1,2					176	16	14	20	164	17,7	14	35	158	19,3	17	35
FC		1,6					160	17,7	14	37,5	149	19,3	17	42,5	143	20,1	17	32,5
FD		2					145	19,3	17	45	141	20,1	17	35	136	20,8	17	22,5
GA	32	1					218	16	14	50	206	17,7	14	55	200	19,3	17	55
GB		1,2					210	16,8	14	50	198	18,5	16	50	186	20,1	17	50
GC		1,6					194	18,5	16	52,5	184	20,1	17	60	178	20,8	17	42,5
GD		2					180	20,1	17	60	167	21,8	19	65	163	22,4	19	47,5
HA	36	1													235	19,3	17	60
HB		1,2													227	20,1	17	57,5
HC		1,6													211	21,8	19	67,5
HD		2													198	23,2	19	57,5
JA	40	1													270	20,1	17	87,5
JB		1,2													262	20,8	17	85
JC		1,6													248	22,4	19	85
JD		2													224	24,8	21	115

1) Different code from EN 2257
2) For tolerances see EN 2257.
3) Shortest possible length
4) Preferably $L < 36\ D$

Table 2

Thread 1)	*B* ± 0,1	*C* max.	*F* min.	*G* +2 0	*H* ± 0,1	*P* +0,3 0
MJ 8 x 1,00 4H5H	1,6	0,6	12	15	1,4	6,5
MJ 10 x 1,25 4H5H	2,4	0,9	15			7,5
MJ 12 x 1,25 4H5H			18	18	1,8	
MJ 14 x 1,50 4H5H	3,4		21	21	2	8,5
1) See ISO 5855-2.						

Table 3

Tube code 1)	*D*	*a*	Cross sectional area min. mm²	Yield load kN	Ultimate load kN
AA	12	1	31,2	7,49	13,73
BA	14	1	36,85	8,84	16,21
CA	16	1	42,5	10,2	18,7
CB		1,2	50,83	12,2	22,36
CC		1,6	66,38	15,93	29,21
DA	20	1	53,75	12,9	23,65
DB		1,2	64,45	15,47	28,36
DC		1,6	84,63	20,31	37,27
EA	25	1	67,88	16,29	29,87
EB		1,2	81,56	19,57	35,89
EC		1,6	107,55	25,81	47,32
ED		2	132,01	31,68	58,08
FA	28	1	76,36	18,32	33,59
FB		1,2	91,83	22,04	40,41
FC		1,6	121,3	29,11	53,38
FD		2	149,16	35,8	65,63
GA	32	1	87,61	21,02	38,54
GB		1,2	105,45	25,31	46,4
GC		1,6	139,55	33,49	61,4
GD		2	171,9	41,26	75,64
HA	36	1	98,91	23,74	43,52
HB		1,2	119,14	28,6	52,43
HC		1,6	157,89	37,9	69,48
HD		2	194,76	46,74	85,69
JA	40	1	110,21	26,94	48,49
JB		1,2	132,83	31,88	58,44
JC		1,6	176,22	42,03	88,54
JD		2	217,62	52,23	95,76
1) Different code from EN 2257					