



**SLOVENSKI STANDARD**  
**SIST EN 4113:2002**

**01-januar-2002**

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**Aerospace series - Clamps, loop ("P" type) in corrosion resisting steel, passivated, with rubber cushioning - Dimensions, masses**

Aerospace series - Clamps, loop ("P" type) in corrosion resisting steel, passivated, with rubber cushioning - Dimensions, masses

Luft- und Raumfahrt - Schellen in Schlaufenform (P-Form) aus korrosionsbeständigem Stahl, passiviert mit Profilgummi Maße, Massen

Série aérospatiale - Colliers en "P" en acier résistant a la corrosion, passivés avec profilé en élastomère - Dimension, masses

<https://standards.iteh.ai/catalog/standards/sist/b5537ba2-f85f-479a-a1d4-c450801e4cc1/sist-en-4113-2002>

**Ta slovenski standard je istoveten z: EN 4113:2001**

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**ICS:**

49.030.99      Drugi vezni elementi      Other fasteners

**SIST EN 4113:2002**      **en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 4113**

September 2001

ICS 49.060; 49.080

English version

## Aerospace series - Clamps, loop ("P" type) in corrosion resisting steel, passivated with rubber cushioning - Dimensions, masses

This European Standard was approved by CEN on 1 January 2001.

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 Management Centre 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 Management Centre 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.

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

**Management Centre: 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 March 2002, and conflicting national standards shall be withdrawn at the latest by March 2002.

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.

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## 1 Scope

This standard specifies the required characteristics of loop style clamps ("P" type) in corrosion resisting steel, passivated with various cushion materials.

These clamps are used for supporting aerospace pipe assemblies and electrical cable bundles.

For temperature range and environmental considerations see the various cushion material standards.

## 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 (including amendments).

EN 2000	Aerospace series – Quality assurance – EN aerospace products – Approval of the quality system of manufacturers
EN 2261	Aerospace series – Silicone rubber (VMQ) – Hardness 70 IRHD
EN 2424	Aerospace series – Marking of aerospace products
EN 2516	Aerospace series – Passivation of corrosion resistant steels and decontamination of nickel base alloys
EN 2566	Aerospace series – Fluorocarbon rubber (FPM) – Hardness 70 IRHD <sup>1)</sup>
EN 3078	Aerospace series – P, Q and saddle clamps with rubber cushion – Technical specification <sup>1)</sup>
EN 3488	Aerospace series – Steel FE-PA13 – Softened – $500 \leq R_m \leq 750$ MPa – Sheet and strip – $0,5 \leq a \leq 6$ mm <sup>1)</sup>
EN 3826	Aerospace series – Fluorosilicone rubber (FVMQ) – Hardness 70 IRHD <sup>2)</sup>
EN 4115	Aerospace series – Cushion, rubber for clamps – Dimensions, masses

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

2) In preparation at the date of publication of this standard

EN 4113:2001 (E)

### 3 Required characteristics

#### 3.1 Materials

According to table 1

Clamp: according to EN 3488

Cushion: according to EN 4115

**Table 1 – Cushion materials**

Cushion material code	Elastomer	Colour
S	Silicone VMQ EN 2261	rust
F	Fluorosilicone FVMQ EN 3826	blue
V	Fluorocarbon FPM EN 2566	brown

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#### 3.2 Surface treatment

Passivation: according to EN 2516

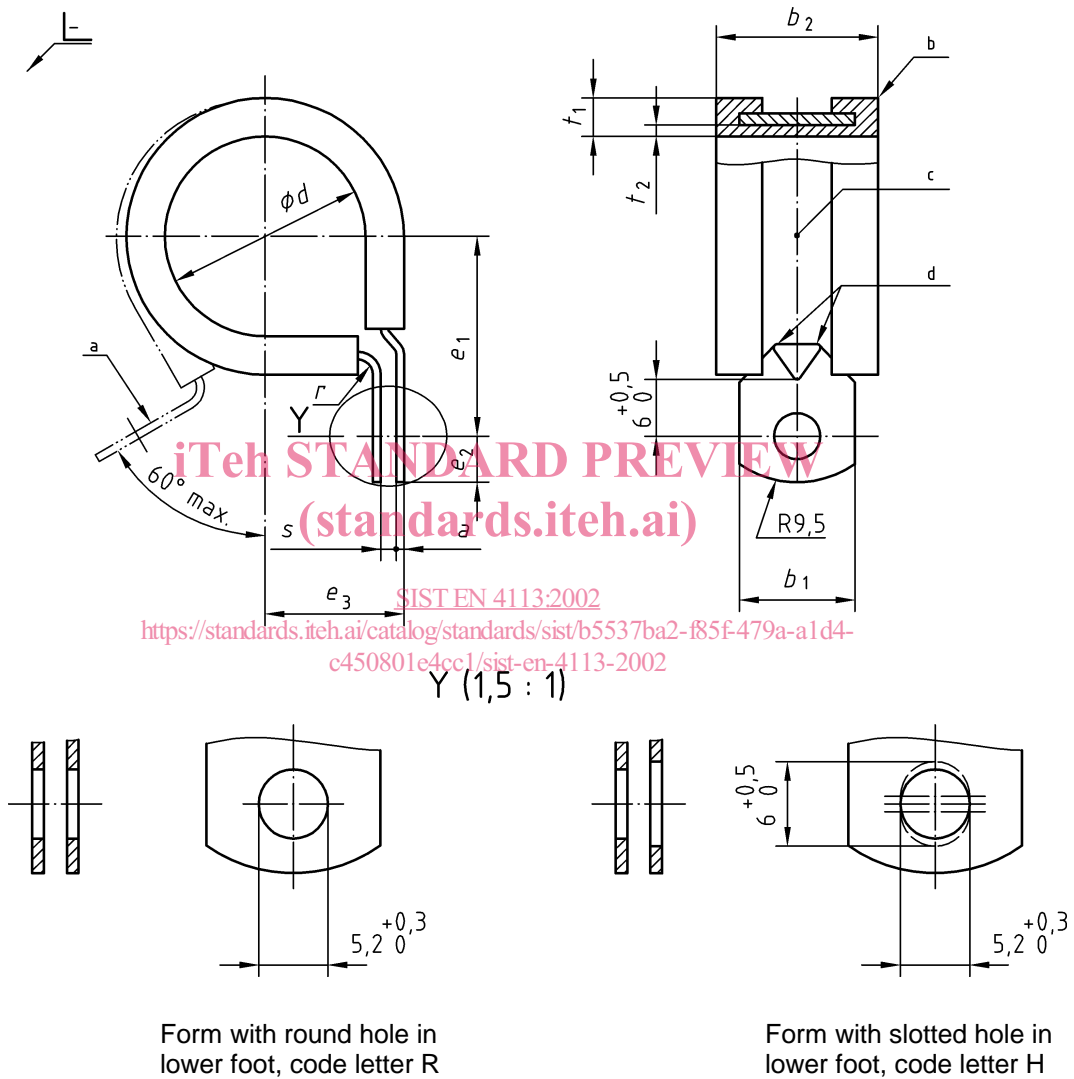
[SIST EN 4113:2002](https://standards.iteh.ai/catalog/standards/sist/b5537ba2-f85f-479a-a1d4-c450801e4cc1/sist-en-4113-2002)

<https://standards.iteh.ai/catalog/standards/sist/b5537ba2-f85f-479a-a1d4-c450801e4cc1/sist-en-4113-2002>

### 3.3 Configuration – Dimensions – Masses

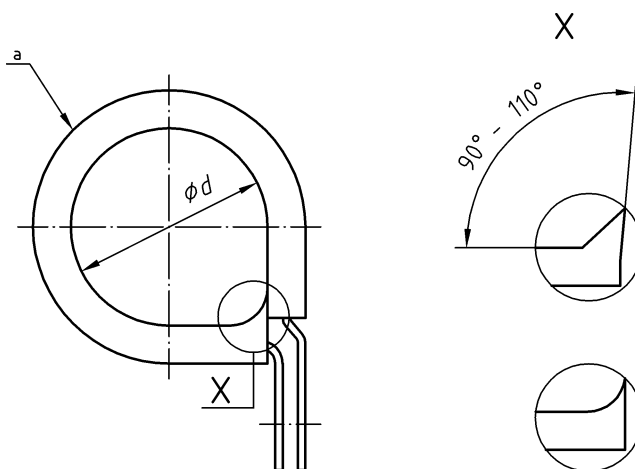
See figures 1 and 2 and table 2

Dimensions are in millimetres



- a Delivery position
- b Rubber cushion according to EN 4115
- c Area for marking
- d Stiffening deformation on both sides as drawn, or central at the manufacturer's option

Figure 1 – Configuration of clamp with rubber cushion



a Rubber cushion according to EN 4115

NOTE: Possible forms of cushion with alternative wedge according to EN 4115 (at manufacturer's option)

**Figure 2 – Configuration of clamp with rubber cushion, wedge version (Form W)**

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Table 2 – Dimensions, masses

Dia- meter code	$b_1$	$b_2^b$	$d^a$	$e_1$	$e_2$	$e_3$	$r$	$s$	$t_1^b$	$t_2^b$	$a^c$	Mass kg/1 000 pieces  max.	Cushion type according to EN 4115											
	$\pm 0,25$	$\pm 0,4$	$\pm 0,4$	$\pm 0,4$	$\pm 0,4$	$\pm 0,4$	max.		$\pm 0,2$	max.			without wedge	with wedge										
03	9,5	14,4	3	11,5	4,7	5,7	1,6					3	1N	1K										
04			4	12,0		6,2						3,5												
05			5	12,5		6,7						3,7												
06			6	13,0		7,2						4,1												
07			7	13,5		7,7						4,3												
08			8	14,0		8,2						4,7												
09			9	14,5		8,7						5												
10			10	15,0		9,2						5,4												
11			11	15,5		9,7						5,7												
12			12	16,0		10,2						5,9												
13			12,7	18		13						16,5			5,5	10,7	2,5	1,6 to 2	4,2	1,2	0,8	7,5	2N	2K
14						14						18,7				11,2						8,2		
15	15	19,2			11,7	8,4																		
16	16	19,7			12,2	8,5																		
17	17	20,2			12,7	8,9																		
18	18	20,7			13,2	9,2																		
19	19	21,2			13,7	9,5																		
20	20	21,7			14,2	9,9																		
21	21	22,2			14,7	10,3																		
22	22	22,7			15,2	10,7																		
23	23	23,2			15,7	11,1																		
24	24	23,9			16,2	11,6																		
25	25	24,2			16,7	12																		
26	26	24,9			17,2	12,3																		
27	27	25,7			17,7	12,8																		
28	28	26,2			18,5	14,2																		
29	29	26,9			19,0	14,6																		
30	30	27,2			19,5	14,9																		
31	31	27,9			20,0	15,2																		
32	32	28,2			20,5	15,4																		
33	33	28,9			21,0	15,7																		
34	34	29,2			21,5	16,3																		
35	35	29,9			22,0	16,6																		
36	36	30,2			22,5	17,1																		
37	37	30,9	23,0	17,3																				
38	38	31,2	23,5	17,6																				
40	40	32,2	24,5	18,2																				
41	41	32,9	25,0	19,2																				
43	43	33,7	26,0	20,3																				
45	45	34,9	27,0	21,3																				
46	46	35,2	27,5	22																				
48	48	36,4	28,7	23,2																				
49	49	36,9	29,2	24,2																				
50	50	37,2	29,7	27,5																				
51	51	37,9	30,2	29,2																				
52	52	38,4	30,7	29,6																				
54	54	39,4	31,7	29,8																				

(continued)