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Aerospace — Omega clamps (saddle clamps) for fluid systems — Dimensions

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Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.

This fourth edition cancels and replaces the third edition (ISO 8177:2015), which has been technically revised.

The main changes are as follows:

— additional dimensions of omega clamps have been included in Table 2.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Aerospace — Omega clamps (saddle clamps) for fluid systems — Dimensions

1 Scope

This document specifies maximum and minimum dimensions for omega clamps (saddle clamps) installed by means of two bolts with nominal diameters of 5 mm.

The specified dimensions define a dimensional envelope. This document is not an interchangeability standard. The tolerances for each type of clamp are defined in the drawings in the standards for parts.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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 Field of application

These clamps are intended for the installation, support and guiding of rigid tubing or hose assemblies used in aerospace equipment.

Omega clamps (saddle clamps) may also be used for other equipment, e.g. electrical cables or looms.

5 Field of use

Omega clamps (saddle clamps) are classified into six types according to the temperature range in which they are intended to be used (see Table 1).

Table 1 — Types of omega clamps (saddle clamps)

Clamp type	Temperature range[a]	
	min.	max.
1	−55	+70
2	−55	+135
3	−55	+200
4	−55	+320
5	−55	+400
6	−55	+650
[a] According to ISO 6771.		

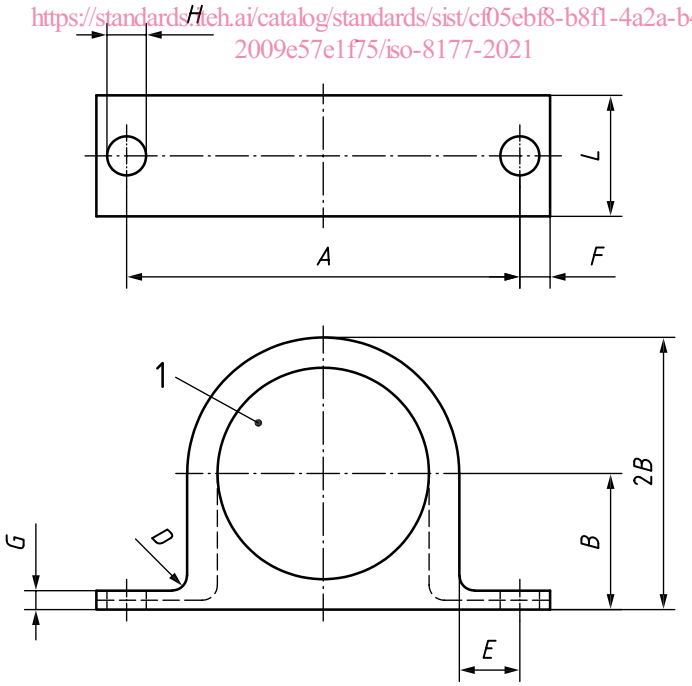
6 Description

The omega clamp (saddle clamp) is a “multi-component”-type clamp. It consists of a top band and a base contoured to the tubing. Mounting holes in the top band align with holes in the base on installation. This clamp is designed for single tubing installation and can be provided as a metallic support only or with a plastomer or elastomer cushion or sheathing, as specified in the parts standard.

7 Dimensions

The omega clamp (saddle clamp) shall be in accordance with Figure 1 and Table 2.

The shape of clamp illustrated in Figure 1 does not purport to be the exact shape of the manufactured clamp. Table 2 only specifies the dimensions required to define the maximum envelope and the proper location of the tube relative to the mounting plane and fastening points.



Key

1 tube opening

Figure 1 — Maximum envelope dimensions for omega clamps (saddle clamps)

Table 2 — Dimensions of omega clamps (saddle clamps)[a]

Dimensions in millimetres

Nominal diameter of tube DN[b]	*A*		*B*[c]		*D*	*E*	*F*	*G*	*H*		*L*[c]
	min.	max.	min.	max.	max.	min.	max.	max.	min.	max.	max.
06	28,5	29,3	5,3	6,3	2,0	7,6	5,4	2,2	5,2	5,5	16
08	30,5	31,3	5,5	7,8	2,0	7,6	5,4	2,2	5,2	5,5	16
10	32,5	33,3	6,0	9,8	2,0	7,6	5,4	2,2	5,2	5,5	16
12	34,5	35,3	6,8	10,8	2,0	7,6	5,4	2,2	5,2	5,5	16
14	36,5	37,3	7,8	11,8	2,5	8,1	5,8	2,2	5,2	5,5	19
16	38,5	39,3	8,8	12,8	2,5	8,1	5,8	2,2	5,2	5,5	19
18	40,5	41,3	9,8	13,8	2,5	8,1	5,8	2,2	5,2	5,5	19
20	42,5	43,3	10,8	14,8	2,5	8,1	5,8	2,2	5,2	5,5	19
22	44,5	45,3	11,8	15,8	2,5	8,1	5,8	2,2	5,2	5,5	19
25	49	49,8	13,7	17,9	3,3	8,8	6,6	2,7	5,2	5,5	21
28	52	52,8	15,2	19,4	3,3	8,8	6,6	2,7	5,2	5,5	21
32	56	56,8	17,2	21,4	3,3	8,8	6,6	2,7	5,2	5,5	21
36	60	60,8	19,2	23,4	3,3	8,8	6,6	2,7	5,2	5,5	21
40	64	64,8	21,2	25,4	3,3	8,8	6,6	2,7	5,2	5,5	21
45	69	69,8	23,7	27,9	3,3	8,8	6,6	2,7	5,2	5,5	21
50	74	74,8	26,2	30,4	3,3	8,8	6,6	2,7	5,2	5,5	21
56	81,4	82,2	29,5	33,8	4	9,5	6,6	3,3	5,2	5,5	24
63	88,4	89,2	33	37,3	4	9,5	6,6	3,3	5,2	5,5	24
70	95,4	96,2	36,5	40,8	4	9,5	6,6	3,3	5,2	5,5	24
80	105,4	106,2	41,5	45,8	4	9,5	6,6	3,3	5,2	5,5	24
90	115,4	116,2	46,5	50,8	4	9,5	6,6	3,3	5,2	5,5	24
100	125,4	126,2	51,5	55,8	4	9,5	6,6	3,3	5,2	5,5	24

[a] All dimensions in this table apply with the tube assembled in the tightened clamp.

[b] Diameters DN 14, 18, 22, 28, 36, 45, 56, 70, and 90 are non-preferred sizes for tubing in fluid systems.

[c] This dimension is an overall dimension which includes metal width and cushion or sheathing.

Bibliography

[1] ISO 6771, *Aerospace — Fluid systems and components — Pressure and temperature classifications*

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