BS ISO 8177:2015

BSI Standards Publication

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

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National foreword

This British Standard is the UK implementation of ISO 8177:2015. It supersedes BS M 64:1987 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ACE/69, Aerospace hydraulic systems, fluids and components.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, SC 10, *Aerospace fluid systems and components*.

This third edition cancels and replaces the second edition (ISO 8177:1987), which constitutes a minor revision.

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

1 Scope

This International Standard 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 International Standard shall not be considered as an inter-changeability standard. The tolerances for each type of clamp are to be defined in the parts standards drawings.

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.

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

3 Field of application

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

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

4 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 (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 See ISO 6771.

5 Description

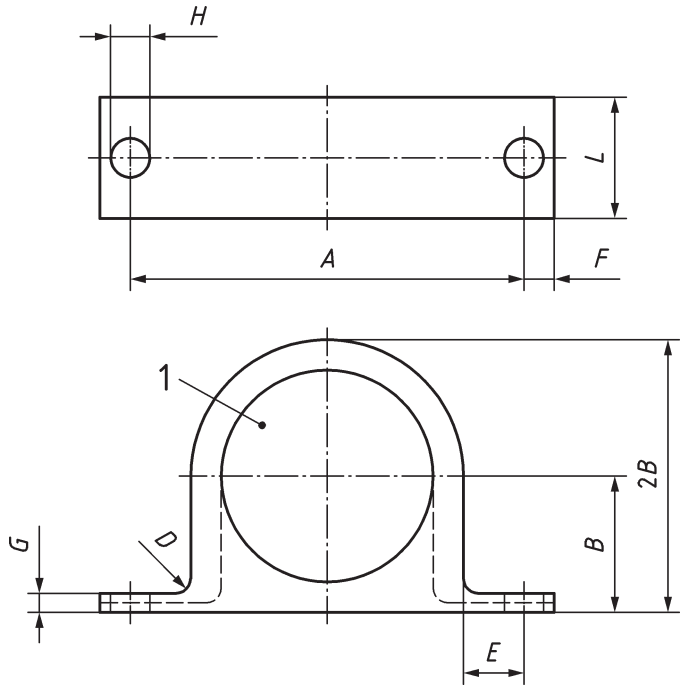
The omega clamp (saddle clamp) is a “multi-component”-type clamp. It consists of a top band and a base contoured to the tubing. Mounting holes in the top band align with holes in the base on installation. This

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.

6 Dimensions

The omega clamp (saddle clamp) shall be in accordance with the figure and Table 2.

The shape of clamp illustrated in the figure does not purport to be the exact shape of the manufactured clamp. Table 2 only specifies those 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 — [a] — Nominal diameter of tube DN

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.
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

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.

Table 2 *(continued)*

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.
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.

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