BS EN 4234:2015

BSI Standards Publication

Aerospace series — Clamps, worm drive — Dimensions, masses

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National foreword

This British Standard is the UK implementation of EN 4234:2015. It supersedes BS EN 4234:2009 which is withdrawn.

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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Aerospace series - Clamps, worm drive - Dimensions, masses

Série aérospatiale - Colliers à vis tangente - Dimensions, masses

Luft- und Raumfahrt - Schellen mit Schneckentrieb - Maße, Massen

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European foreword

This document (EN 4234:2015) 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of an identical text or by endorsement, at the latest by January 2016, and conflicting national standards shall be withdrawn at the latest by January 2016.

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1 Scope

This European Standard specifies the characteristics of worm drive clamps designed for use with suitable rubber hoses to form joints in fluid system pipelines for aerospace applications.

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 2465, *Aerospace series — Steel FE-PA3901 (X2CrNi18-9) — Softened — 450 MPa ≤ R_m ≤ 680 MPa — Bar for machining — 4 mm ≤ D_e ≤ 100 mm*

EN 2516, *Aerospace series — Passivation of corrosion resisting steels and decontamination of nickel base alloys*

EN 3077, *Aerospace series — Clamps worm drive — Technical specification* [1)]

EN 3487, *Aerospace series — Steel FE-PA3601 (X6CrNiTi18-10) — Air melted — Softened — Bar for machining — a or D ≤ 250 mm — 500 MPa ≤ R_m ≤ 700 MPa*

EN 3488, *Aerospace series — Steel FE-PA3601 (X6CrNiTi18-10) — Air melted — Softened — Sheet and strip — a ≤ 6 mm — 500 MPa ≤ R_m ≤ 700 MPa*

EN 10088 (all parts), *Stainless steels*

3 Design

The housing shall be firmly attached to the band.

NOTE Clamps of form N are only equipped with a stamped band and undrilled, round-headed screw.

4 Required characteristics

4.1 Configuration — Dimensions — Masses

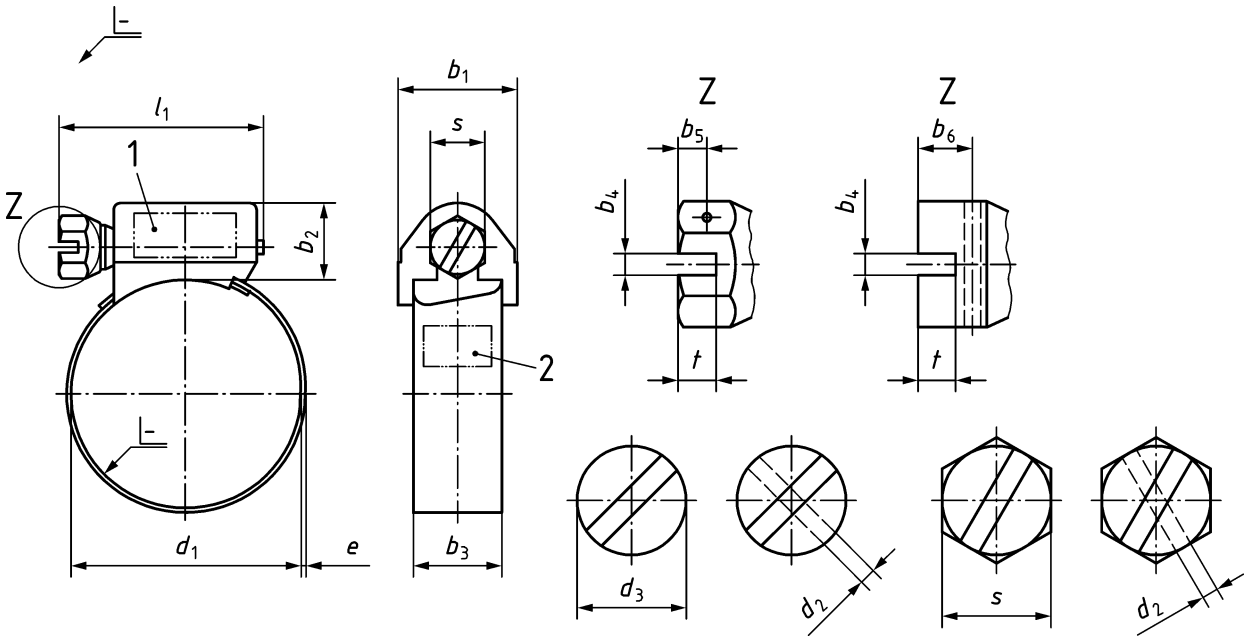
The configuration shall correspond with Figure 1.

Details of form not defined are at the manufacturer's option.

Dimensions shall correspond with Figure 1 and Table 1 to Table 3.

Sharp edges are not permissible and the inner edges should be rounded or beaded.

1) Published as ASD-STAN Prestandard at the date of publication of this standard (http://www.asd-stan.org/).



Key

1 Field 1 for marking
2 Field 2 for marking

The band is serrated or not according the manufacturer.

Figure 1

Table 1 — Dimensions

Dimensions in millimetres

Form	b_1 max.	b_2 max.	b_3	b_4 min.	b_4 max.	b_5	b_6	d_2 $^{+0,3}_{0}$	d_3 h13	e ± 0,05	l_1 max.	s h12	t
L	16	11,3	12 ± 0,15	1,6	1,9	3,6 ± 0,1	4 ± 0,1	1,2	8	0,7	30	7	2,75 ± 0,25
M [a] 10/16 to 16/27	10,9	8,9	8 ± 0,15	1	1,2	2,7 ± 0,1	$3^{+0,3}_{0}$		6		20,8		1,35 ± 0,27
M [a] 23/35 to 380/400	12	10				$2,6^{+0,2}_{0}$			7		22		$1,6^{0}_{-0,2}$
N	7,5	7,3	$5^{+0,12}_{0}$	0,9	1	—	—	—	4	0,4	13	—	$1,2^{+0,2}_{0}$

[a] Alternative tolerances for M ≤ Ø 27; $e = 0,6 \pm 0,05$.

Table 2 — Clamp ranges and masses

Size code	d_1		Mass [a]			Size code	d_1		Mass [a]	
	min.	max.	N	L	M		min.	max.	L	M
	mm		g/piece				mm		g/piece	
011	7	11	3,6	—	—	**190**	170	190	55,0	39,4
014	9	14	3,8			**200**	180	200	56,0	
016	10	16	—		7,9	**210**	190	210	58,0	
019	10	19	4,0		—	**220**	200	220	60,0	
022	12 [b]	22	—	24,0	8,5	**230**	210	230	62,0	
027	16	27		25,0	10,6	**240**	220	240	63,0	44,5
035	23	35		25,5	14,6	**250**	230	250	64,0	
045	25	45		28,0	14,3	**260**	240	260	66,0	
050	32	50		29,0	16,6	**270**	250	270	68,0	
060	40	60		31,0	17,9	**280**	260	280	70,0	49,5
070	50	70		33,0	19,3	**290**	270	290	72,0	
080	60	80		35,0	20,6	**300**	280	300	74,0	
090	70	90		38,0	21,9	**310**	290	310	75,0	
100	80	100		40,0	24,7	**320**	300	320	76,0	54,5
110	90	110		41,0	26,1	**330**	310	330	77,0	
120	100	120		44,0	27,1	**340**	320	340	79,0	
130	110	130		45,0	30,7	**350**	330	350	80,0	
140	120	140		47,0		**360**	340	360	82,0	59,5
150	130	150		49,0	34,8	**370**	350	370	83,0	
160	140	160		50,0		**380**	360	380	84,0	
170	150	170		52,0		**390**	370	390	85,0	
180	160	180		54,0		**400**	380	400	86,0	64,5

[a] Calculated on the basis of a density of 7,85 kg/dm^3.

[b] For form L: $d_{1\min.} = 14$.

Table 3 — Configuration

Details of form	Code	
Locking wire hole	H	(with locking wire hole)
	—	(without locking wire hole)
Shape of head	R	(round)
	S	(hexagonal)

4.2 Materials and surface treatment

See Table 4.

Table 4 — Materials and surface treatment

Material – Corrosion resisting steel			Surface treatment	Code
Band	**Housing**	**Screw**		
According to EN 3488 [a]	According to EN 3488 [a]	According to EN 3487 [a]	passivated according to EN 2516	–
		According to EN 2465 [a]	passivated according to EN 2516	A
		According to EN 3487 [a]	without	B
		According to EN 2465 [a]	without	C

[a] Alternative material according to EN 10088.

4.3 Tightening torque

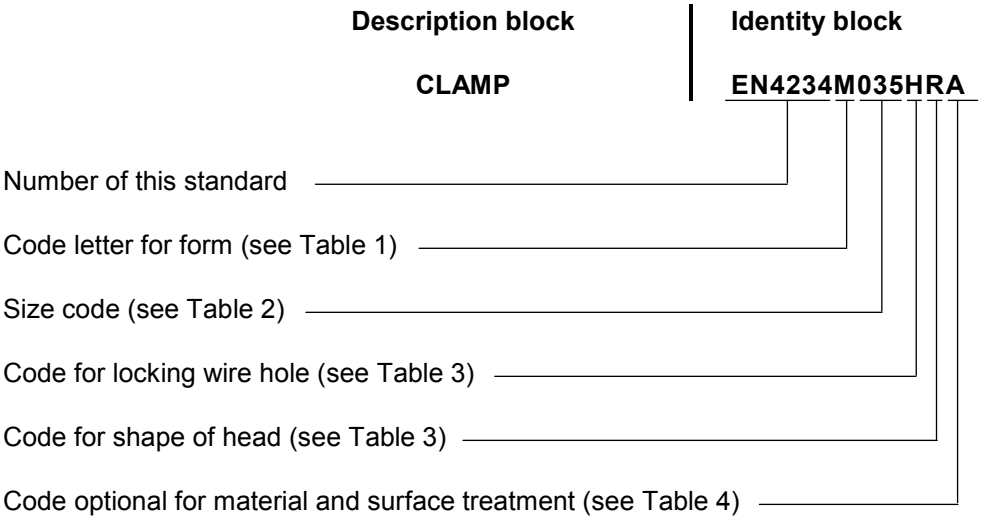
Form L: max. 6 N·m.

Form M: max. 2,5 N·m.

Form N: max. 0,8 N·m.

5 Designation

EXAMPLE



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

6 Marking

6.1 Field 1

According to Figure 1.

According to EN 2424, style C plus code letter of form L and M;
style F plus code letter of form N.

6.2 Field 2

According to Figure 1.

Indication of the clamping range ($d_{1\ min.}/d_{1\ max.}$); e. g. 10/16.

7 Technical specification

According to EN 3077.

Annex A
(informative)

Standard evolution form

MODIFICATION	REASON AND VALIDATION
Added alternative material according to EN 10088 into Table 4.	Allowing alternative materials.
Moved Design clause after clause 2. Reordered Chapters (was 3.4, now 3)	This is introductory preamble & should be at the start of the spec, not at the end.
Added a Hex plain view (no drill hole) to Figure 1. Save confusion.	Three end views of screw head were shown. Round plain & drilled. Hex drilled only. Added a Hex plain view (no drill hole) to save confusion.
Table 1 – Dimensions b_4 min. was added.	No control of slot's minimum width was given. Needs to accept standard screwdriver blades.

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BSI Group Headquarters

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