BS EN 3373-008:2012

BSI Standards Publication

Aerospace series — Terminal lugs and in-line splices for crimping on electric conductors

Part 008: Copper lugs nickel plated ring shaped for copper conductors nickel plated for inch series studs up to 340 °C — Product standard

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National foreword

This British Standard is the UK implementation of EN 3373-008:2012.

The UK participation in its preparation was entrusted to Technical Committee ACE/6, Aerospace avionic electrical and fibre optic technology.

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

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EN 3373-008

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English Version

Aerospace series - Terminal lugs and in-line splices for crimping on electric conductors - Part 008: Copper lugs nickel plated ring shaped for copper conductors nickel plated for inch series studs up to 340 °C - Product standard

Série aérospatiale - Cosses et prolongateurs pour sertissage sur conducteurs électriques - Partie 008: Cosses en cuivre nickelé, à plages rondes pour sertissage sur câbles en cuivre nickelé pour bornages en inches température jusqu'à 340 °C - Norme de produit

Luft- und Raumfahrt - Kabelschuhe und Stoßverbinder zum Crimpen auf elektrischen Leitungen - Teil 008: Ringförmige Kabelschuhe aus vernickeltem Kupfer für vernickelte Kupferleitungen, für Inch-Gewindebolzen, bis 340 °C - Produktnorm

This European Standard was approved by CEN on 24 December 2011.

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Foreword

This document (EN 3373-008:2012) 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of an identical text or by endorsement, at the latest by September 2012, and conflicting national standards shall be withdrawn at the latest by September 2012.

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1 Scope

This European Standard specifies nickel plated copper lugs ring shape for crimping on nickel plated copper conductors specified in EN 2083. They are for use on inch dimensioned studs at temperatures up to 340 °C.

This standard should be used in conjunction with EN 3373-001.

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 2083*, Aerospace series — Copper or copper alloy conductors for electrical cables — Product standard*

EN 2424*, Aerospace series — Marking of aerospace products*

EN 3373-001*, Aerospace series — Terminal lugs and in-line splices for crimping on electric conductors — Part 001: Technical specification*

MIL-DTL-22520G, Crimping Tools, Terminal, Hand or power actuated, Wire Termination, and tool kits General Specification For [1)]

ASTM B 152-97a*, Standard Specification for Copper Sheet, Strip, Plate, and Rolled Bar (Metric)* [2)]

SAE AMS-QQ-N-290B, *Nickel Plating (Electrodeposited)* [3)]

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 3373-001 and the following apply.

4 Characteristics

4.1 Temperature range

The operation temperature range for nickel plated copper terminal is – 65 °C to 340 °C.

4.2 Material

Copper as per ASTM B 152-97a.

4.3 Surface protection

Nickel plated as per SAE AMS-QQ-N-290B.

5 Dimensions and mass

Dimensions and mass see Figure 1 and Table 1.

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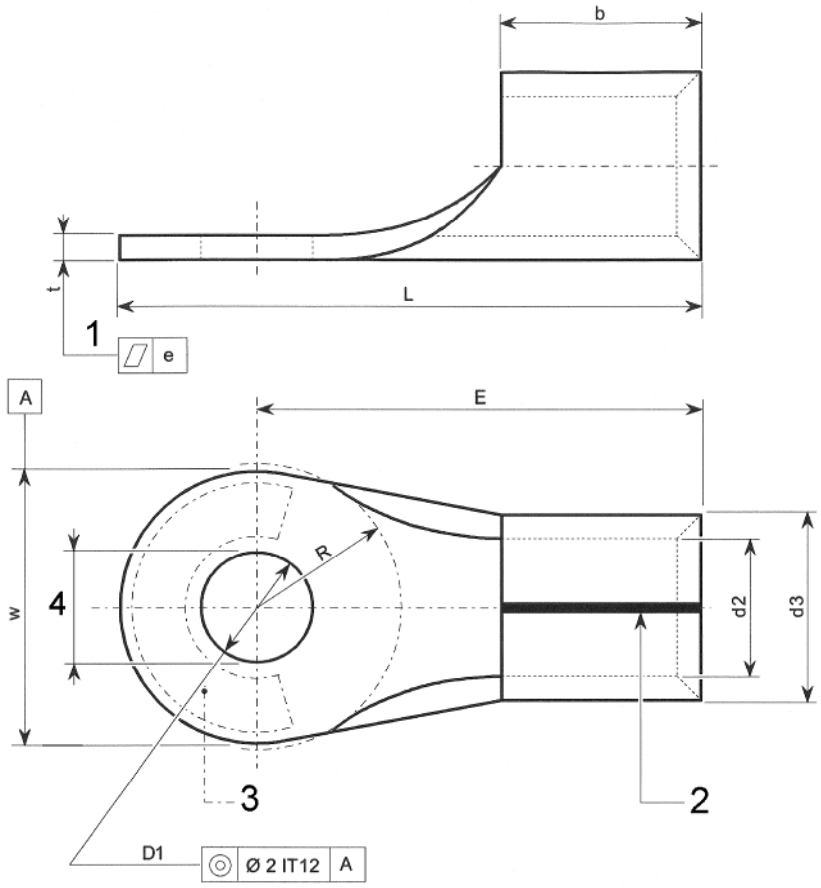
1) Published by: DoD National (US) Mil. Department of Defense http://www.defenselink.mil/.

2) Published by: ASTM National (US) American Society for Testing and Materials http://www.astm.org/.

3) Available from Naval Air Systems Command, Highway 547, Lakehurst, NJ 08733-5100.

The indicated dimensions and mass are mandatory, other dimensions are at the discretion of the manufacturer.

Dimensions are in millimetres.



Key

1 Within radius R, see note 1
2 Brazing beam
3 Marking, see Clause 9

NOTE 1 e = 0,1 for lugs $\leq$ 6 mm^2.
e = 0,2 for lugs $>$ 6 mm^2.

When split barrel construction is used, the split shall be permanently sealed and shall not open as a result of crimping.

All surfaces shall be smooth and free from burrs and sharp edges.

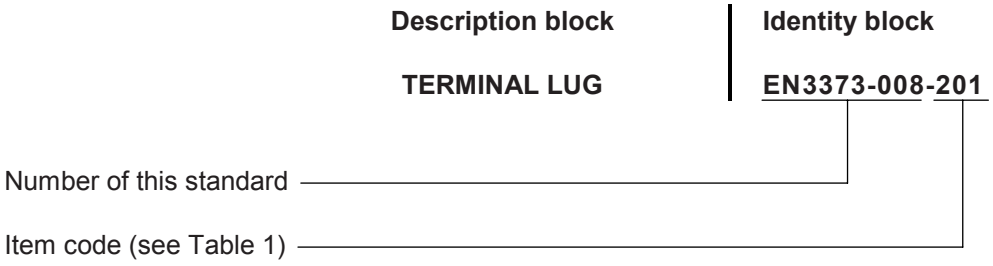
Figure 1

Table 1

Item code	EN cable code (AWG)	Stud Diameter Nom	Stud Diameter US	Stud Diameter M	b Nom.	D_1 ± 0,13	d_2 + 0,25 0	d_3 − 0 0,25	E max.	L max.	Washer Radius R max.	t ± 0,04	w max.	Mass Kg/100 max.
908	090 (8)	4,17	8	M4	9,40	4,30	4,50	7,20	17,80	23,80	6,10	1,20	12,20	3,30
805		4,83	10	-		4,90			18,90	24,10	9,10		10,55	
808		4,83	10	M5		5,30			17,80	23,80	9,10		12,00	
803		6,35	1/4	M6		6,60			17,80	23,80	9,10		12,15	
804		7,94	5/16	M8		8,40			22,30	29,80	10,30		15,00	
807		9,52	3/8	M10		10,50			22,30	29,80	13,40		15,30	
709	140 (6)	4,83	10	-	9,80	5,30	5.70	9,10	23,80	29,80	13,45	1,45	12,10	6
705		6,35	1/4	M6		6,60			23,80	29,80	14,40		12,20	
605		7,94	5/16	M8		8,40			24,70	32,50	13,50		16,05	
602		9,52	3/8	-		10.50			24,70	32,50	13,40		16,20	
403	220 (2)	4,83	10	M5	11,30	5,30	7,70	11,50	27,10	33,20	13,00	1,70	12,20	9
401		6,35	1/4	M6		6,60			27,10	33,00	11,10		13,00	
402		7,94	5/16	M8		8,40			25,70	33,70	12,70		16,20	
408		9,52	3/8	M10		10,50			25,50	33,50	13,00		16,95	
204	340 (2)	6,35	1/4	M6	12,70	6,60	9,40	13,40	31,40	39,00	17,30	1,80	16,10	13
202		7,94	5/16	M8		8,40			31,40	39.00	17,40		16,20	
201		9,52	3/8	-		10.50			30,80	38,80	13,45		16,10	
206		9,52	3/8	-		10.50			31,70	42,70	17,30		22,70	
203		9,52	3/8	M10		10,50			31,40	39,00	17,40		16,20	
108	From 420 (1) to 530 (0)	6,35	1/4	M6	18,70	6,60	11,40	15,35	39,30	50,00	16,00	1,80	22,00	20
103		7,94	5/16	M8		8,40			39,20	45,50	18,80		16,30	
106		7,94	5/16	M8		8,40			39,30	50,00	16,00		20,80	
104		7,94	5/16	M8		8,40			39,00	49,70	23,40		22,50	
105		9,52	3/8	-		10.50			39,50	49,70	18,80		22,00	
109		12,70	1/2	-		13.00			38,70	49,70	15,85		22,20	
005	680 (00)	7,94	5/16	M8	18,70	8,40	13,10	17,60	38,00	51,00	19,00	2,00	24,00	26
004		9,52	3/8	M10		10,50			37,80	48,50	19,80		18,10	
006		9,52	3/8	M10		10,50			38,00	51,00	19,00		24,00	
007		12,70	1/2	M12		13.00			39,00	51,00	19,00		24,00	
301	850 (000)	9,52	3/8	M10	-	10,50	-	-	41,70	54.20	13,55	2,30	25,70	36
Tolerances: JS13														

6 Designation

EXAMPLE



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

7 Quality assurance

In accordance with EN 3373-001.

8 Application tool

8.1 General

As specified in Table 2.

8.2 Tools

Any tools accepting the die set specified on this document can be used for crimping the lugs under caution they comply with the general rules of safety requirements for hand tools, and they can provide sufficient force for the crimping operation, a locking mechanism shall prevent re-opening before the operation is completed.

Tool used to crimp terminal lugs defined by this standard shall comply with the requirements of MIL-DTL-22520G.

8.3 Punch and die design detail

The punch and die used for crimping terminal lugs to this standard shall provide the right compression percentage and have the profile defined in figure and Table 3 to form a crimp joint meeting the requirements of EN 3373-001 (calculation of compression ratio is shown in 8.3).

The punch and die used for crimping terminal lugs to this standard shall be procured from the same manufacturer.

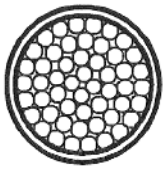
Die shall be engraved with AWG gage numiber in order to obtain a stamped mark on the crimping part of lug after crimping operation (see Table 2).

8.4 Percentage of compression

The constriction is given by the ratio of the cross section area of the conductor after crimping over the cross section area of the conductor before crimping.

EXAMPLE (see Figure 2)

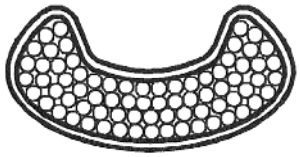
Before crimping



Cable 00 (1 369 strands Ø 0,25)
Cross section area = 68 mm^2

Crompression ratio = $1 - \frac{47,6}{68} = 0,3$

After crimping



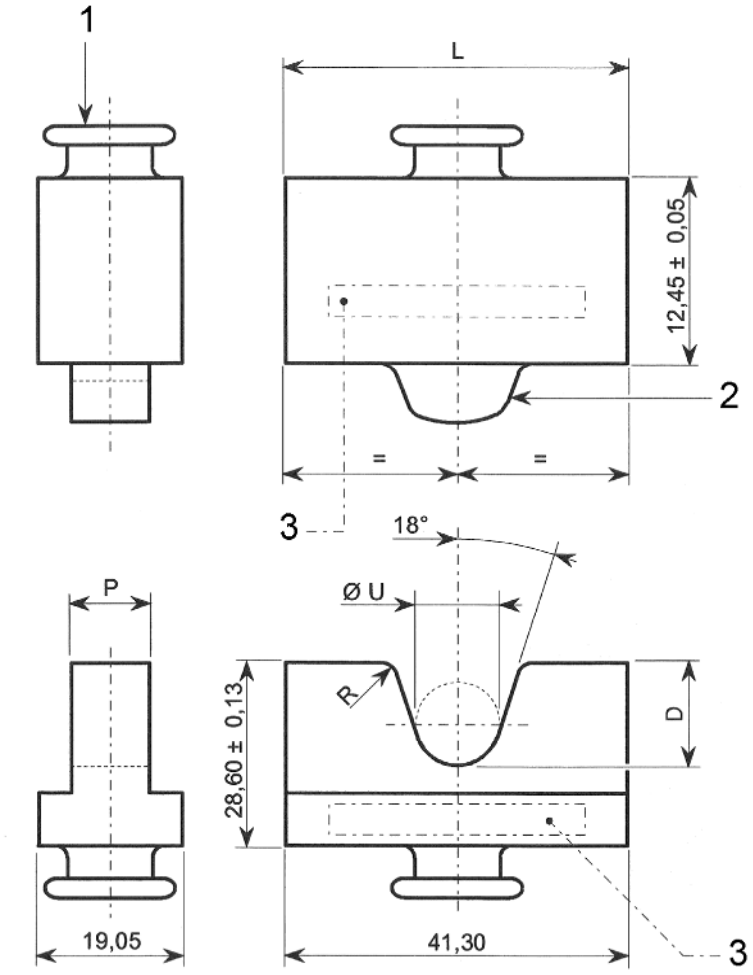
Crimping area
Cross section area = 47,6 mm^2

Compression percentage = 30 %

Figure 2 — Indentor configuration

8.5 Punch and die configuration

See Figure 3 and Table 2.



Key

1 Locking device in crimping tool
2 For punch detail, see 8.2
3 Marking of die set reference

Figure 3 — Die configuration

Table 2

EN cable code	AWG stamped mark	*D*	*P*	Ø *U*	Minimum compression %	*R*
090	8	4,70	9,40	7,85	22	0,380
140	6	5,70	9,80	9,10	22	0,635
220	4	7,30	11,30	11,40	22	0,635
340	2	8,70	12,70	13,10	22	0,635
530	1/0	10,50	18,70	15,35	22	0,635
680	00	11,80	18,70	17,60	22	0,635
850	000	-	-	-	22	0,635
Tolerances: JS13						

Other configurations of indentors and dies are permissible, subject to the resultant crimp joint, meeting the requirements of EN 3373-001. The minimum compression percentage is given for information only.

8.6 Example of tool configuration

See Figure 4.

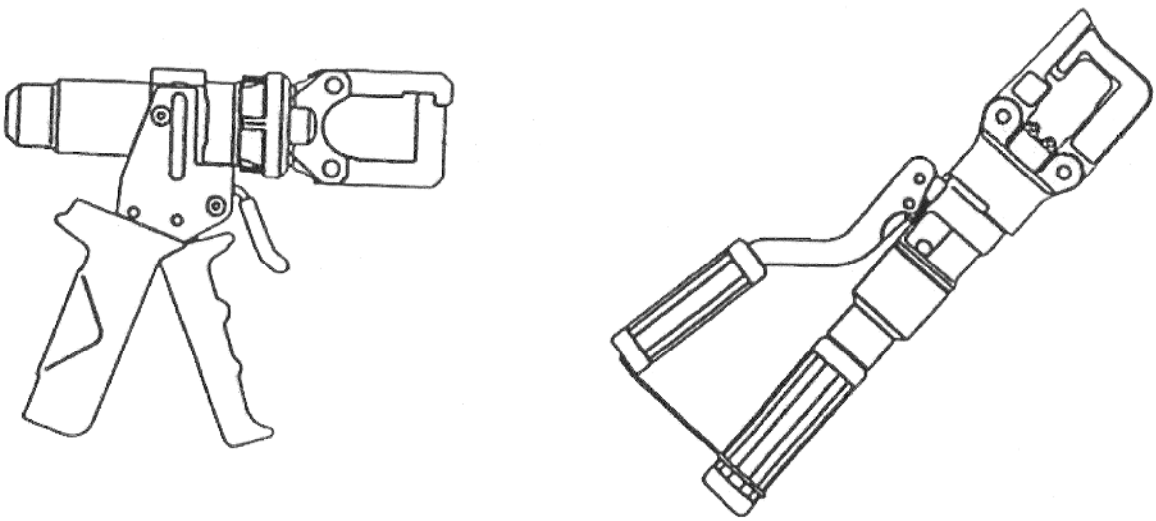


Figure 4

9 Marking

The AWG code as per Table 1 and manufacturer monogram as per EN 2424 style F shall be embossed in the marking areas shown in Figure 1.

10 Packaging

The packaging shall be marked with EN designation, manufacturers name, part number, quantity in the package, date of manufacture and batch-number.

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