BRITISH STANDARD AEROSPACE SERIES

BS EN
2945:1998

Inserts, screw thread, helical coil, self-locking — Assembly procedure

The European Standard EN 2945:1998 has the status of a British Standard

ICS 49.030.30

National foreword

This British Standard is the English language version of EN 2945:1998.

The UK participation in its preparation was entrusted by Technical Committee ACE/12, Aerospace fasteners and fastening systems, to Subcommittee ACE/12/1, Aerospace fasteners and fastening systems (International), which has the responsibility to:

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— monitor related international and European developments and promulgate them in the UK.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 8, an inside back cover and a back cover.

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EN 2945

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Descriptors: aircraft industry, screw thread, self-locking screw thread, assembling, inspection

English version

Aerospace series - Inserts, screw thread, helical coil, self-locking - Assembly procedure

Série aérospatiale - Filets rapportés, à freinage interne - Procédure de montage

Luft- und Raumfahrt - Draht-Gewindeeinsätze, selbstsichernd - Einbauverfahren

This European Standard was approved by CEN on 23 February 1998.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 2945:1998 E

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of an identical text or by endorsement, at the latest by November 1998, and conflicting national standards shall be withdrawn at the latest by November 1998.

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.

1 Scope

This standard specifies the assembly procedure (tools and inspection) for self-locking, helical coil, screw thread inserts defined by EN standards, for aerospace applications.

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.

ISO 5855-2	Aerospace - MJ threads - Part 2: Limit dimensions for bolts and nuts
EN 2942	Aerospace series - Inserts, screw thread, helical coil, self-locking, in heat resisting nickel base alloy NI-PH2801 (Inconel X750), silver plated
EN 2944	Aerospace series - Inserts, screw thread, helical coil, self-locking, in corrosion resisting steel FE-PA3004
EN 3542	Aerospace series - Inserts, screw thread, helical coil, self-locking, in heat resisting nickel base alloy NI-PH2801 (Inconel X750)

3 Tools

Configuration, see figures 1, 2, 3, 4, 5 and 6 and tables 1, 2, 3, 4 and 5. Dimensions and tolerances are in millimetres.

3.1 Manual insertion tools

Of the following type or equivalent

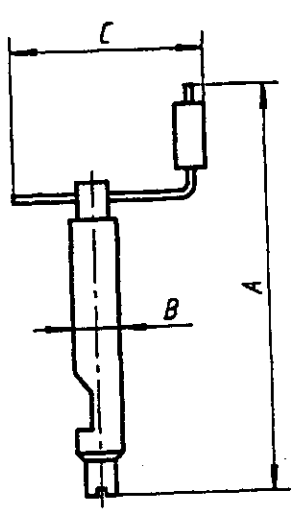

Figure 1

Table 1

Diameter code of thread insert	A 1)	B 1)	C 1)
040	193	16	68
050	202		
060	211		83
070	216		
080	224		92
100	238	23	
1) Recommended envelope dimensions			

3.2 Pneumatic insertion tools

Of the following type or equivalent

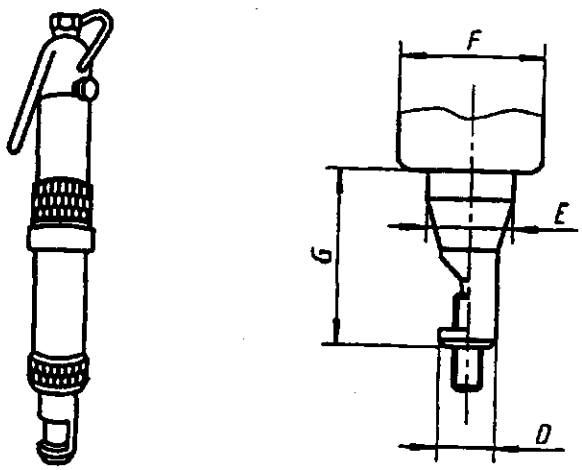

Figure 2

Table 2

Diameter code of thread insert	*D* 1)	*E* 1)	*F* 1)	*G* 1)
040	8	13	28	32
050	11	11		
060		13		
070	13		42	49
080	15	15		
100	17	17		57
1) Recommended envelope dimensions				

3.3 Profile of insertion tool front portion and wear limit

The insertion tool shall have a threaded front portion which conforms to figures 3 or 4 and table 3.

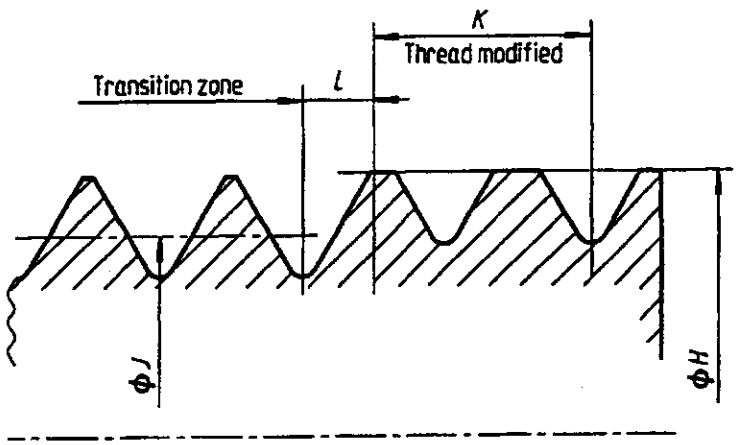

Figure 3

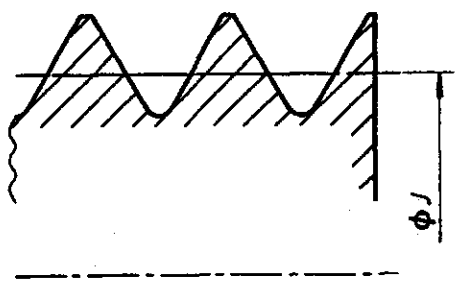

Figure 4

Table 3

Diameter code of thread insert	H		J		K 1)	L 2)
	0 − 0,05	Wear limit	0 − 0,05	Wear limit	nom.	nom.
040	3,45	3,35	3,2	3,10	1,05	0,35
050	4,4	4,3	4,1	3,95	1,2	0,4
060	5,25	5,15	4,9	4,75	1,5	0,5
070	6,25	6,15	5,9	5,75		
080	7,25	7,15	6,9	6,75		
100	9,1	9	8,7	8,5	1,875	0,625

1) K = 1,5 pitches
2) L = 0,5 pitches

3.4 Tang break tool

With trigger device, of the type shown or equivalent

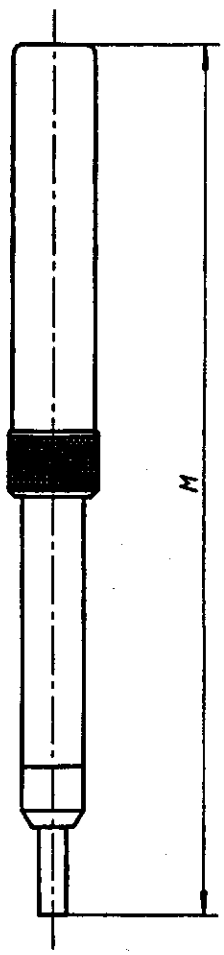

Figure 5

Table 4

Diameter code of thread insert	*M* 1)
040	100
050	150
060	
070	
080	
100	200
1) Recommended envelope dimension	

3.5 Extraction tool

Of the following type or equivalent

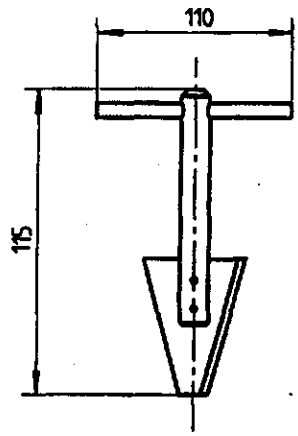

Figure 6

4 Assembly of thread inserts

4.1 The top coil of the thread insert shall be 0,5 pitches to 1,25 pitches below the lead in face of the installation hole (see figure 7).

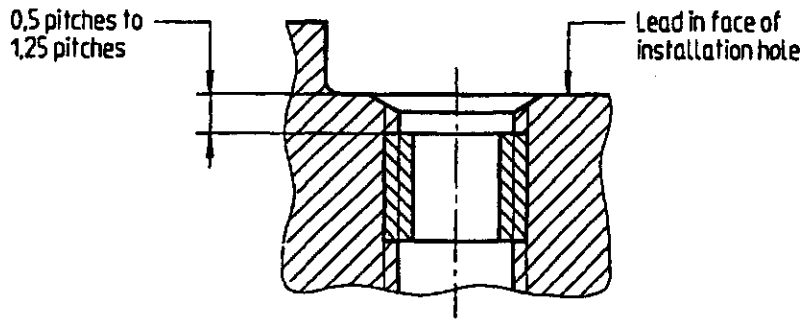

Figure 7

4.2 Break off tang with tool specified in 3.4 and remove the broken off tang.

5 Inspection of installed thread inserts

They shall be below the lead in face of the installation hole by the values given in 4.1.

They shall accept male threads (as shown in table 5), to the depth of the first deformed coil (length specified in product standard).

Visually check that the tang has been broken off and removed.

The locking torque shall be checked on the actual assembly, against the values given in table 5.

Table 5: Inspection of installed thread inserts

Diameter code of thread insert	Thread [1] (Associated bolt)	Min. locking torque Nm
040	MJ4 × 0,7-4h6h	0,16
050	MJ5 × 0,8-4h6h	0,3
060	MJ6 × 1-4h6h	0,4
070	MJ7 × 1-4h6h	0,6
080	MJ8 × 1-4h6h	0,8
100	MJ10 × 1,25-4h6h	1,4
1) In accordance with ISO 5855-2		

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