SLOVENSKI STANDARD
SIST EN 4015:2005

01-junij-2005

Nadomešča:
SIST EN 4015:2004

Aerospace series - Inserts, thickwall, self-locking - Installation and removal procedure

Aerospace series - Inserts, thickwall, self-locking - Installation and removal procedure

Luft- und Raumfahrt - Gewindeeinsätze, dickwandig, selbstsichernd - Ein- und Ausbauverfahren

Série aérospatiale - Douilles filetées, a paroi renforcée, a freinage interne - Procédure d'installation et d'extraction

Ta slovenski standard je istoveten z: **EN 4015:2004**

ICS:

49.030.30	Matice	Nuts

SIST EN 4015:2005 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4015

November 2004

ICS 49.030.30

Supersedes EN 4015:2003

English version

Aerospace series - Inserts, thickwall, self-locking - Installation and removal procedure

Série aérospatiale - Douilles filetées, à paroi renforcée, à freinage interne - Procédure d'installation et d'extraction

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This European Standard was approved by CEN on 11 September 2003.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

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Ref. No. EN 4015:2004: E

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Foreword

This document (EN 4015:2004) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 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of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document supersedes EN 4015:2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This standard specifies the conditions of installation and removal procedure (hole serration profile, tools, swaging) of self-locking thickwall inserts defined by EN standards, for aerospace applications.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 3831, *Aerospace series – Inserts, thickwall, self-locking, MJ threads, in heat resisting steel FE-PM3801 (17-4PH), MoS_2 coated*

EN 4014, *Aerospace series – Inserts, thickwall, self-locking – Design standard*

3 Insert information

Tables 1 and 2 provide the cross reference between the insert codification, the related bolt thread and the tapped hole diameter.

Table 1 — Normal size insert

Insert reference	Bolt thread diameter	Tapped hole diameter	Tapped hole reference
EN3831-050-0	MJ5×0,8	MJ8×1	EN4014-050-0
EN3831-060-0	MJ6×1	MJ9×1	EN4014-060-0
EN3831-070-0	MJ7×1	MJ10×1	EN4014-070-0
EN3831-080-0	MJ8×1	MJ11×1	EN4014-080-0
EN3831-100-0	MJ10×1,25	MJS13×1	EN4014-100-0

Table 2 — First repair size insert

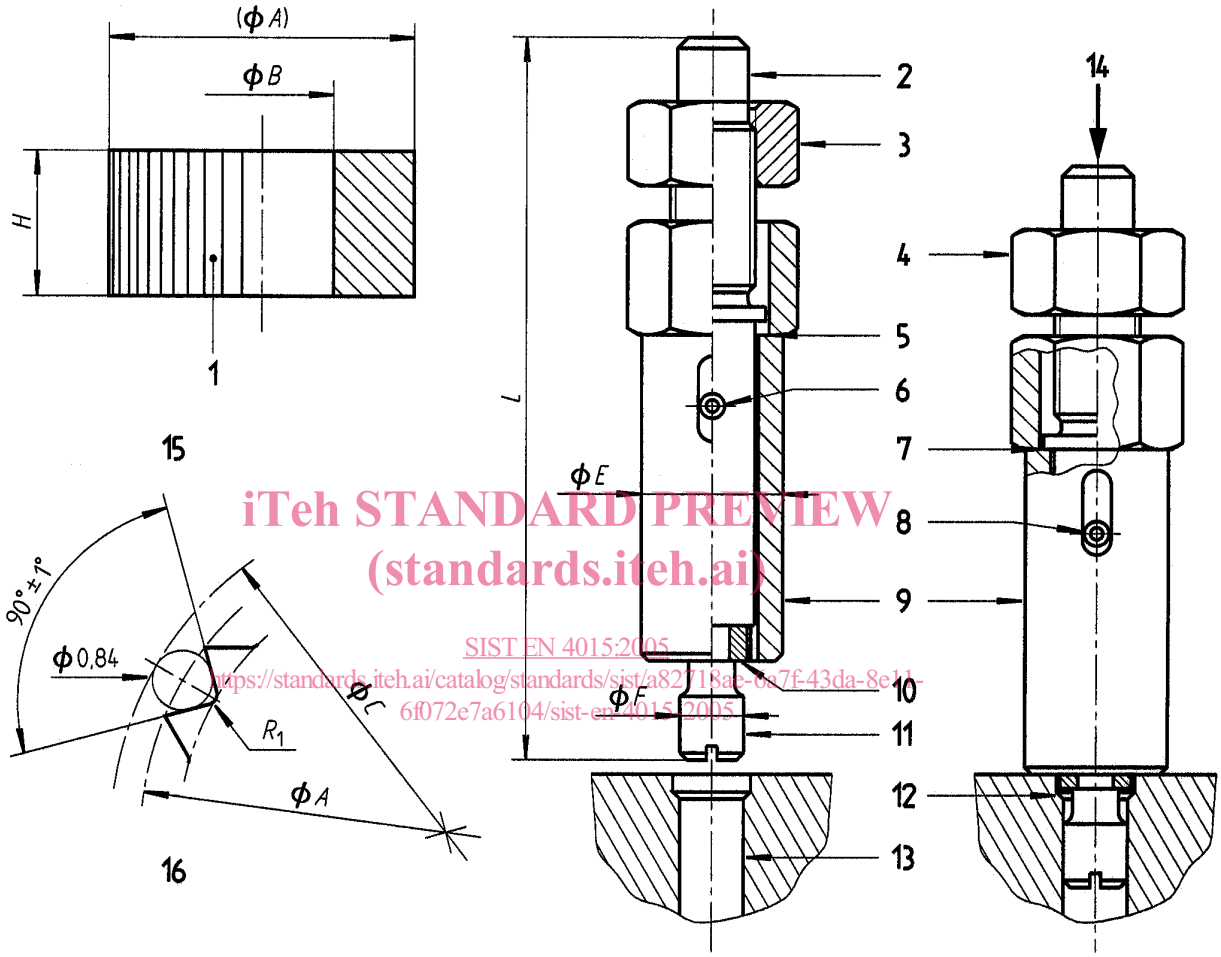
Insert reference	Bolt thread diameter	Tapped hole diameter	Tapped hole reference
EN3831-050-1	MJ5×0,8	MJ9×1	EN4014-050-1
EN3831-060-1	MJ6×1	MJ10×1	EN4014-060-1
EN3831-070-1	MJ7×1	MJ11×1	EN4014-070-1
EN3831-080-1	MJ8×1	MJ12×1	EN4014-080-1
EN3831-100-1	MJ10×1,25	MJ14×1	EN4014-100-1

4 Broaching

4.1 In materials with R_m < 900 MPa

Figure 1 illustrates an example of hand broaching tool which may be used in materials with a strength of R_m < 900 MPa. Table 3 gives dimensions of the broach.

Dimensions in millimetres



Key

1 *J*, number of teeth
2 mandrel
3 nut backed off
4 turn clockwise to remove cutter.
5 stop
6 pin up
7 mandrel stops here
8 pin down
9 body
10 cutter up
11 pilot
12 broaching complete
13 tap drill hole
14 load
15 cutter up
16 view enlarged cutter up

Figure 1

Table 3

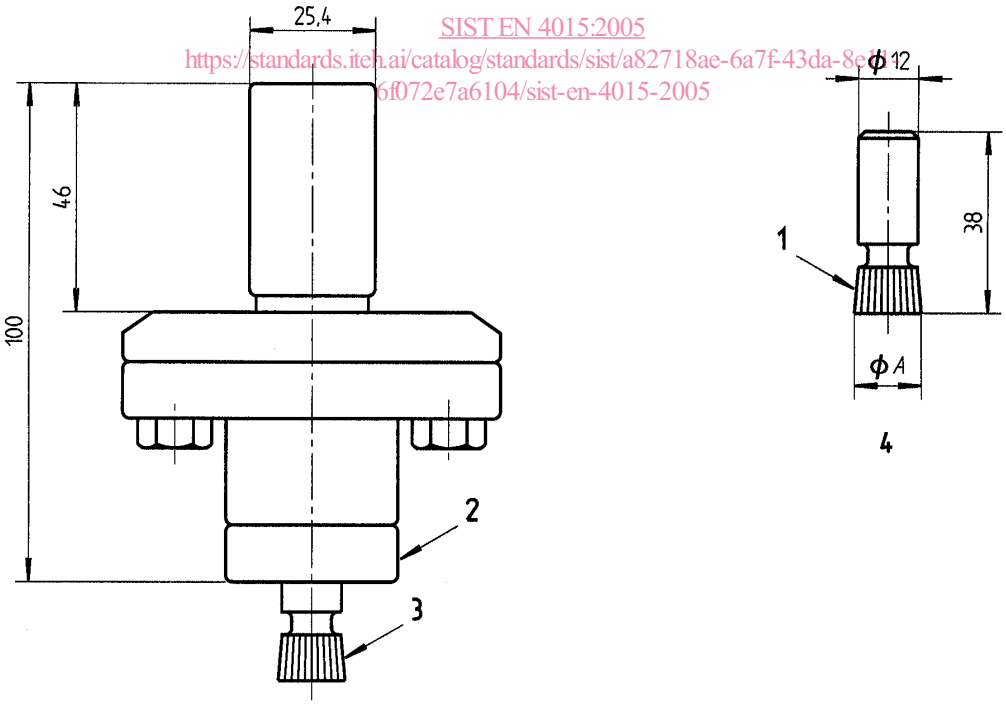
Dimensions in millimetres

Tapped hole reference	*A* Ref.	*B* + 0,06 + 0,02	*C* ± 0,03	*E* Ref.	*F* Ref.	*H* + 0,1 0	*J* Number of teeth	*L* Ref.	R_1 max.
EN 4014-050-0S	8,53	4	9,37	18	6,8	4,1	24	82	0,15
EN 4014-060-0S EN 4014-050-1S	9,50	5	10,36	20	7,8	4,2	27	84	0,2
EN 4014-070-0S EN 4014-060-1S	10,49		11,28		8,8	4,6	28	85	
EN 4014-080-0S EN 4014-070-1S	11,47	6	12,32	21	9,8	4,7	32	87	
EN 4014-080-1S	12,73		13,57	22	10,8	5,1	33	88	
EN 4014-100-0S	13,46		14,30	23	11,8		37	90	
EN 4014-100-1S	14,55	7	15,39	24	12,8	5,3	40		

4.2 In materials with $R_m \geq 900$ MPa

Figure 2 illustrates an example of a machine broaching tool which may be used in materials with a strength of $R_m \geq 900$ MPa. Table 3 gives dimensions of the broach.

Dimensions in millimetres



Key

1 *J,* number of teeth
2 wobbling drift holder
3 broach
4 tool

Figure 2

5 Hole serration profile

Table 4 and Figures 3 and 4 provide details of the insert part number and associated bolt thread in relation to the serration profile in the counterbore of the installation hole.

Table 4

Dimensions in millimetres

Tapped hole reference	Tapped hole diameter	Nominal diameter (Associated bolt)	*AB*	*AC*	*J* Number of teeth	*K*	
						max.	min.
EN 4014-050-0S	MJ8×1	MJ5	8,42	8,02	24	2,6	2
EN 4014-060-0S	MJ9×1	MJ6	9,39	8,99	27	2,7	2,1
EN 4014-050-1S		MJ5					
EN 4014-070-0S	MJ10×1	MJ7	10,38	9,98	28	3	2,4
EN 4014-060-1S		MJ6					
EN 4014-080-0S	MJ11×1	MJ8	11,36	10,96	32	3,2	2,6
EN 4014-070-1S		MJ7					
EN 4014-080-1S	MJ12×1	MJ8	12,62	12,22	33	3,6	3
EN 4014-100-0S	MJS13×1	MJ10	13,35	12,95	37		
EN 4014-100-1S	MJ14×1		14,45	14,05	40	3,8	3,2

Dimensions in millimetres

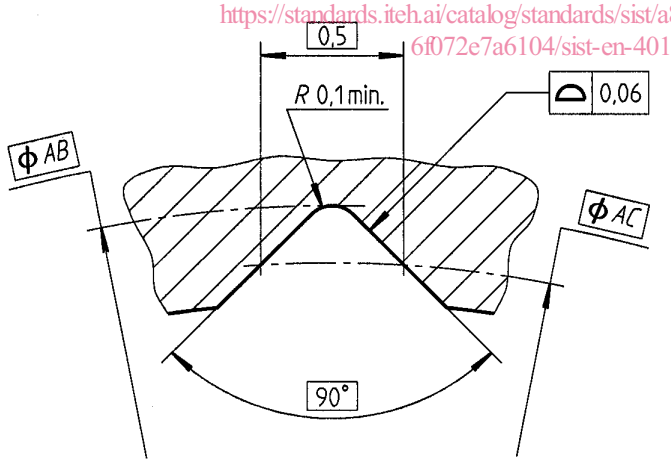
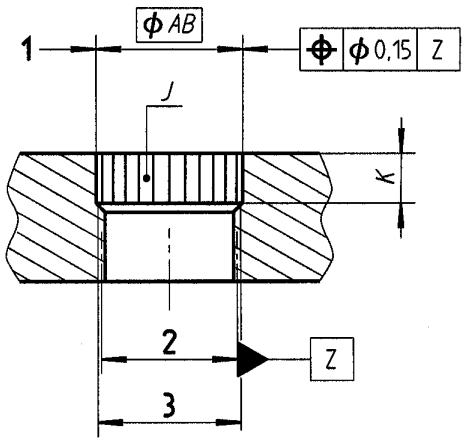


Figure 3



Key

1 major diameter of serration
2 pitch diameter
3 thread

Figure 4