
Aeronavtika - Vložki, navoj UNJ, samozapiralni, s samozagozdnim ključem - 002.
del: Standard za projektiranje

Aerospace series - Inserts, UNJ threads, self-locking, with self-broaching keys - Part
002: Design standard

Luft- und Raumfahrt - Gewindeeinsätze, UNJ-Gewinden, selbstsichernd, mit
selbsträumenden Stiften - Teil 002: Konstruktionsnorm

Série aérospatiale - Douilles filetées, à filetage UNJ, à freinage interne, à clavettes auto-
brochantes - Partie 002 : Norme de conception

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Aerospace series - Inserts, UNJ threads, self-locking, with self-broaching keys - Part 002: Design standard

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This European Standard was approved by CEN on 12 June 2010.

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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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document (EN 4673-002:2010) 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of an identical text or by endorsement, at the latest by February 2011, and conflicting national standards shall be withdrawn at the latest by February 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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

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EN 4673-002:2010 (E)**1 Scope**

This European Standard specifies the applications and installation hole dimensions for EN standard, self-locking, self-broaching key, UNJ threads inserts and provisions for component salvage, 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 4673-001, *Aerospace series — Inserts, UNJ threads, self-locking, with self-broaching keys — Part 001: Installation and removal procedure*

EN 4673-003, *Aerospace series — Inserts, UNJ threads, self-locking, with self-broaching keys — Part 003: Technical specification*

ISO 3161, *Aerospace — UNJ threads — General requirements and limit dimensions*

3 Design

Typical examples of installed inserts are shown in Figures 1 and 2.

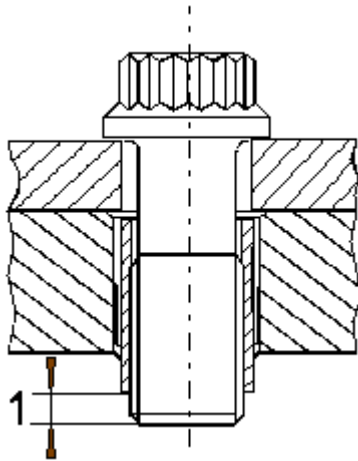
3.1 The threaded self-locking inserts may be used in tapped blind holes and tapped through holes. The minimum flange thickness dimensions K given in Tables 3 to 5 are less than the insert length. When using these minimum flange thicknesses, protrusion of the inserts will occur (see Figure 5, footnote ^a). Designers must therefore ensure that the inserts do not protrude into an abutment face or foul any other adjacent features.

3.2 The installed insert is compatible with UNJ threaded bolts to ISO 3161.

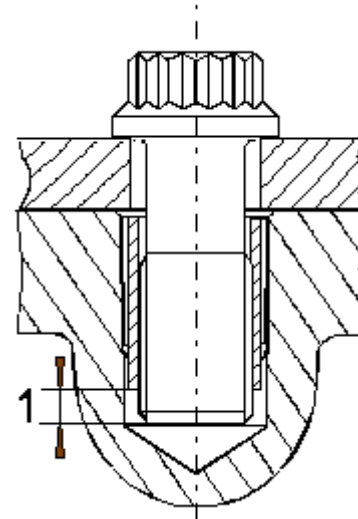
3.3 The minimum selected bolt length shall ensure full thread engagement with the insert (see Figures 1 and 2).

3.4 These screw thread inserts may be used in aluminium alloys and in harder materials, such as heat resistant steels and titanium alloys.

3.5 During the design of the fitted flange, overall dimensions of the tools shall be taken into account as specified in EN 4673-001.

**Key**

1 1,5 pitches minimum

Figure 1**Key**

1 1,5 pitches minimum

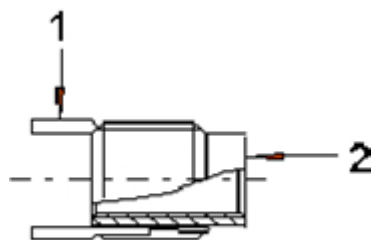
Figure 2**4 Use****4.1 General**

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A self-locking self-broaching key insert as shown in Figure 3 is a sleeve of metal which is threaded both internally and externally with 2 or more self-broaching keys.

These inserts are screwed into tapped holes (see 5.1) and are fixed by broaching the keys into the thread of the component (see Figures 1 and 2) thus preventing the insert moving during the installation or removal of a bolt.

The self-locking zone of these inserts is positioned at the opposite side from the key side.

**Key**

- 1 Keys to be broached into the thread of the parent component
- 2 Formed out-of-round to achieve self-locking feature

Figure 3

EN 4673-002:2010 (E)

4.2 Performance

The inserts according to EN 4673-003 have a minimum performance of 25 re-uses at ambient temperature and 5 re-uses after baking at the maximum operating temperature given on the product standard.

The self-locking torque values for the inserts are given in Table 1. These are the values required to achieve the minimum re-usability performance at ambient temperature in accordance with the technical specification of the inserts.

Table 1

Bolt thread diameter	Self-locking torque Nm	
	min.	max.
.190 0-32UNJF	0,23	3,40
.250 0-28UNJF	0,40	6,78
.312 5-24UNJF	0,73	13,56
.375 0-24UNJF	1,07	18,08
.437 5-20UNJF	1,58	22,60
.500 0-20UNJF	2,03	33,90

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4.3 Installation restrictions

In applications where it is necessary to pass items through the installed insert, care shall be taken to ensure that such items do not foul the locking feature of the insert. The maximum diameter X that can be passed through the insert is illustrated in Figure 4 and dimensions are given in Table 2.

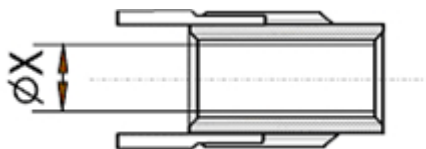


Figure 4

Table 2

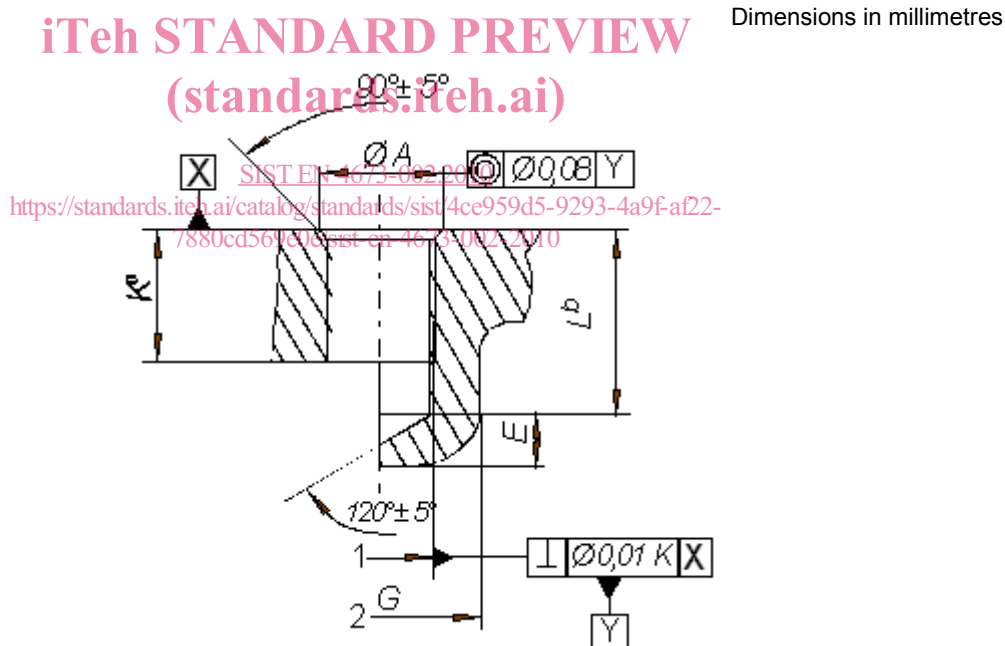
Dimensions in millimetres

Bolt thread diameter	$\varnothing X$ max.
.190 0-32UNJF	3,0
.250 0-28UNJF	4,1
.312 5-24UNJF	5,4
.375 0-24UNJF	6,7
.437 5-20UNJF	7,5
.500 0-20UNJF	8,5

5 Required characteristics

5.1 Installation hole

See Figure 5 and Tables 3 to 7.



Key

- 1 Pitch diameter
- 2 Boss diameter

^a K allows total installation of the threaded part of the insert with 0,75 mm under-flush max. The locking feature of the insert may protrude.

^b L min. $\geq K + 5$ pitches. Allows automatic tapping.

Figure 5