



SLOVENSKI STANDARD

SIST EN 3676:2001

01-januar-2001

Aerospace series - Inserts, thin wall, self-locking - Design standard

Aerospace series - Inserts, thin wall, self-locking - Design standard

Luft- und Raumfahrt - Gewindeeinsätze, dünnwandig, selbstsichernd -
Konstruktionsnorm

Série aérospatiale - Douilles filetées, à paroi mince, à freinage interne - Norme de
conception

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Ta slovenski standard je istoveten z: **EN 3676:1998**
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ICS:

49.030.99 Drugi vezni elementi Other fasteners

SIST EN 3676:2001 **en**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 3676

January 1998

ICS 49.030.99

Descriptors: aircraft industry, joining adaptor, specification, design, utilization, characteristic, dimension, hole size, designation

English version

Aerospace series - Inserts, thin wall, self-locking - Design
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This European Standard was approved by CEN on 18 September 1997.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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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

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 successively received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

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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 July 1998, and conflicting national standards shall be withdrawn at the latest by July 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.

REPUBLIKA SLOVENSKA
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SIST EN 3676:2001
PREVOD NA SLOVENŠČINO
SIST EN 3676:2001



1 Scope

This standard specifies the use and installation hole dimensions for EN standard, self-locking, thin wall inserts, for aerospace applications and provisions for component salvage.

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 5855-1	Aerospace - MJ threads - Part 1: General requirements
ISO 5855-2	Aerospace - MJ threads - Part 2: Limit dimensions for bolts and nuts
EN 3236	Aerospace series - Inserts, thin wall, self-locking, short, in heat resisting nickel base alloy NI-P100HT (Inconel 718), silver plated internal thread ¹⁾
EN 3237	Aerospace series - Inserts, thin wall, self-locking, long, in heat resisting nickel base alloy NI-P100HT (Inconel 718), silver plated internal thread ¹⁾
EN 3298	Aerospace series - Inserts, thin wall, self-locking - Installation and removal procedure ¹⁾
EN 3916	Aerospace series - Inserts, thin wall, self-locking - Non-conformance procedure for components using salvage ²⁾

1) Published as AECMA Prestandard at the date of publication of this standard

2) In preparation at the date of publication of this standard

3 Design

Typical examples of installed inserts are illustrated in figures 1 and 2.

There are two lengths of inserts, a short one and a long one (selection being dependent on application), each having its own part number range as given in table 1.

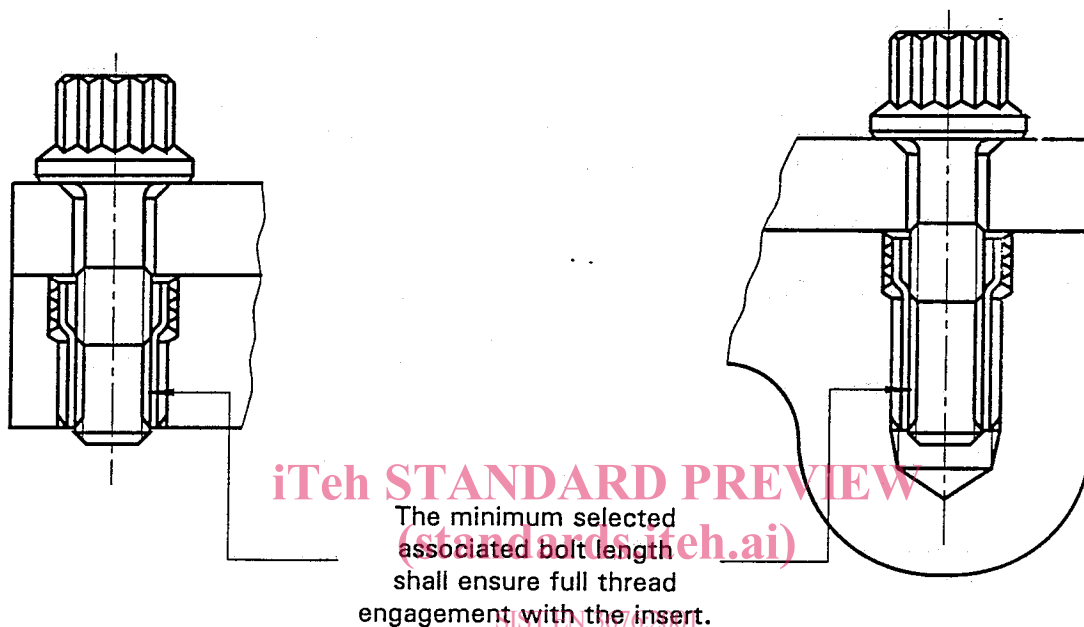


Figure 1

Figure 2

Table 1

Dimensions in millimetres

Associated bolt thread	Short inserts		Long inserts	
	Part number	Length $\pm 0,3$	Part number	Length $\pm 0,3$
MJ5x0,8	EN 3236-050	7,6	EN 3237-050	13,15
MJ6x1	EN 3236-060	8,9	EN 3237-060	15,35
MJ7x1	EN 3236-070	10,9	EN 3237-070	17,75
MJ8x1	EN 3236-080	12,8	EN 3237-080	20,15
MJ10x1,25	EN 3236-100	16,2	EN 3237-100	24,85

The minimum flange thickness "F" given in table 4 is less than the insert lengths given in table 1. When using these minimum flange thicknesses, protrusion of the insert will occur. Designers shall therefore ensure that the insert does not protrude into an abutment face or foul any other adjacent features.

The minimum flange thickness has been calculated to provide sufficient insert thread engagement, to ensure the insert does not creep, when the associated bolt is tightened.

4 Use

4.1 General

A self-locking thin wall insert as shown in figure 3 is a sleeve of metal which is threaded both internally and externally, with an externally serrated upper portion.

These inserts are screwed into tapped holes which contain counterbores (see 5.1) and are fixed by swaging the serrated portion into the counterbore 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 mid point approximately of the internal threaded portion.

These inserts shall be silver plated only on their internal thread.

Inserts may be used:

- in blind and open ended tapped holes;
- in various types of materials ranging from light alloys to corrosion and heat resisting steels, nickel and titanium alloys.

The installed insert is suitable for use with bolts with MJ threads to ISO 5855-1.

Short inserts to EN 3236 are used in hard materials such as steel, nickel and titanium alloys and are installed into a tapped hole which contains a serrated counterbore, see 5.2.

Long inserts to EN 3237 are used in softer materials such as light alloys and are installed into a tapped hole with a plain counterbore.

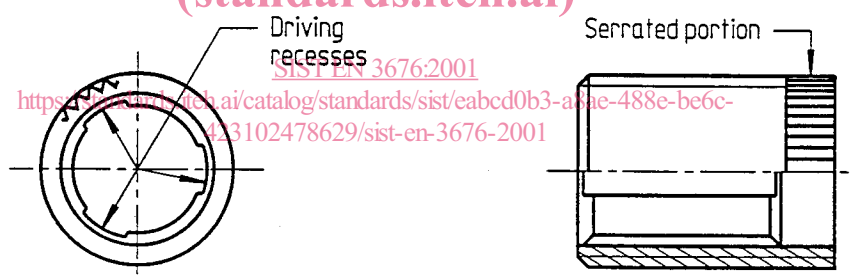


Figure 3

4.2 Performance and material

The inserts to table 1 have a minimum performance of 25 re-uses at the maximum test temperature of 550 °C.

It should be noted that there will be a progressive increase in the insert re-usability when used at lower temperatures.

The self-locking torque values for these inserts are given in table 2.

NOTE: Temperature limitations may depend on the material into which an insert has been installed.

Table 2

Associated bolt thread mm	Self-locking torque Nm	
	max.	min.
MJ5x0,8	2,5	0,25
MJ6x1	3,2	0,35
MJ7x1	4,6	0,50
MJ8x1	6,0	0,65
MJ10x1,25	9,5	1,20

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 3.

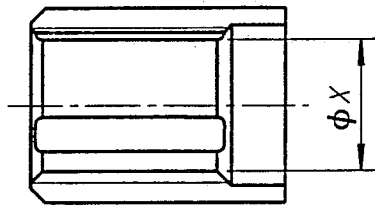


Figure 4

Table 3

Dimensions in millimetres

Associated bolt thread	X max.
MJ5x0,8	3,12
MJ6x1	3,70
MJ7x1	4,50
MJ8x1	5,30
MJ10x1,25	6,64

5 Required characteristics

See figure 5 and table 4.

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5.1 Installation hole

The plain counterbore depth " D_1 " applies when inserts are to be installed into light alloy components. The serrated counterbore " D_2 " applies when inserts are to be installed into hard materials, see 4.1.

Dimension " E " is the recommended minimum boss thickness. Designers shall select boss thickness based on the methods of manufacture of the component (e.g. casting, forging or fully machined).

For provisions for salvage, see 7.

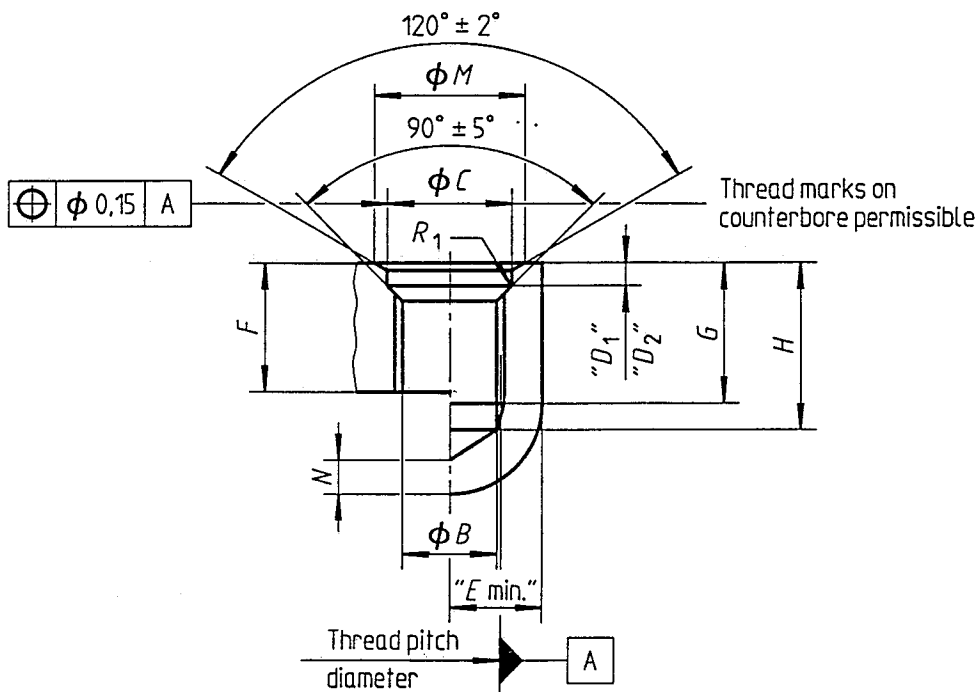


Figure 5

Table 4

Dimensions in millimetres

Diameter code	Hole Length code ¹⁾	Associated bolt thread	Thread diameter ²⁾	B ³⁾		C		D_1		D_2	
				max.	min.	max.	min.	max.	min.	max.	min.
050	L	MJ5x0,8	MJ7x1-4H5H (MOD)	6,13	6,03	7,1	7,0	2,65	2,4		
	S									3,05	2,8
060	L	MJ6x1	MJ8x1-4H5H (MOD)	7,17	7,07	8,1	8,0	2,75	2,5		
	S									3,15	2,9
070	L	MJ7x1	MJ9x1-4H5H (MOD)	8,20	8,10	9,1	9,0	3,05	2,8		
	S									3,45	3,2
080	L	MJ8x1	MJ10x1-4H5H (MOD)	9,24	9,11	10,1	10,0	3,25	3,0		
	S									3,65	3,4
100	L	MJ10x1,25	MJ12x1-4H5H (MOD)	11,29	11,16	12,1	12,0	3,65	3,4		
	S									4,05	3,8

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(concluded)

Diameter code	Hole Length code ¹⁾	Associated bolt thread	E	F ⁴⁾	G ⁵⁾	H ⁵⁾	M		N ⁵⁾	R_1
							max.	min.		
050	L	MJ5x0,8	5,5	13,0	14,15	19,6	8,5	8,2	2,0	0,25
	S		5,5	7,3	8,6	14,05				
060	L	MJ6x1	7,0	15,5	16,35	21,8	9,5	9,2	2,0	0,25
	S		6,0	8,6	9,9	15,35				
070	L	MJ7x1	7,5	18,0	18,75	24,2	10,5	10,2	2,0	0,25
	S		6,5	10,6	11,9	17,35				
080	L	MJ8x1	8,0	20,0	21,15	26,6	11,5	11,2	2,0	0,25
	S		7,0	12,5	13,8	19,25				
100	L	MJ10x1,25	9,0	25,0	25,85	31,3	13,5	13,2	2,0	0,25
	S		8,0	15,9	17,2	22,65				

1) Length code L for long inserts (EN 3237), code S for short inserts (EN 3236)
2) In accordance with ISO 5855-2, except modified minor diameter
3) Modified minor diameter
4) Open ended tapped holes
5) Blind tapped holes