



SLOVENSKI STANDARD
SIST EN 3202:2001

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Aerospace series - Holes and traps for T-head bolts - Design standard

Aerospace series - Holes and traps for T-head bolts - Design standard

Luft- und Raumfahrt - Löcher und Anlageflächen für T-Kopfschrauben -
Konstruktionsnorm

Série aérospatiale - Trous et dégagements pour vis à tête en T - Norme de conception

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Ta slovenski standard je istoveten z: EN 3202:1995

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ICS:

49.030.20 Sorniki, vijaki, stebelni vijaki Bolts, screws, studs

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en

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

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CENEuropean Committee for Standardization
Comité Européen de Normalisation
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Foreword

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This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECA).

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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 AECA, 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of an identical text or by endorsement, at the latest by January 1996, and conflicting national standards shall be withdrawn at the latest by January 1996.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

0 Introduction

This standard specifies a procedure for calculating traps for T-head bolts. This provides standard traps which prevent the bolts from rotating during tightening and prevent incorrect mating.

The application of T-head bolts may cause flange deformations (notches). Where only small notches are acceptable due to high notch sensitivity of the trap surface, close tolerance bolts and their associated holes for rotating parts shall be used in static parts.

1 Scope

This standard specifies the holes and traps for T-head bolts with head configuration to EN standards for aerospace applications.

2 Required characteristics

See figures 1 to 5 for traps, figure 6 for holes and tables 1 to 6.

Dimensions and tolerances are in millimetres.

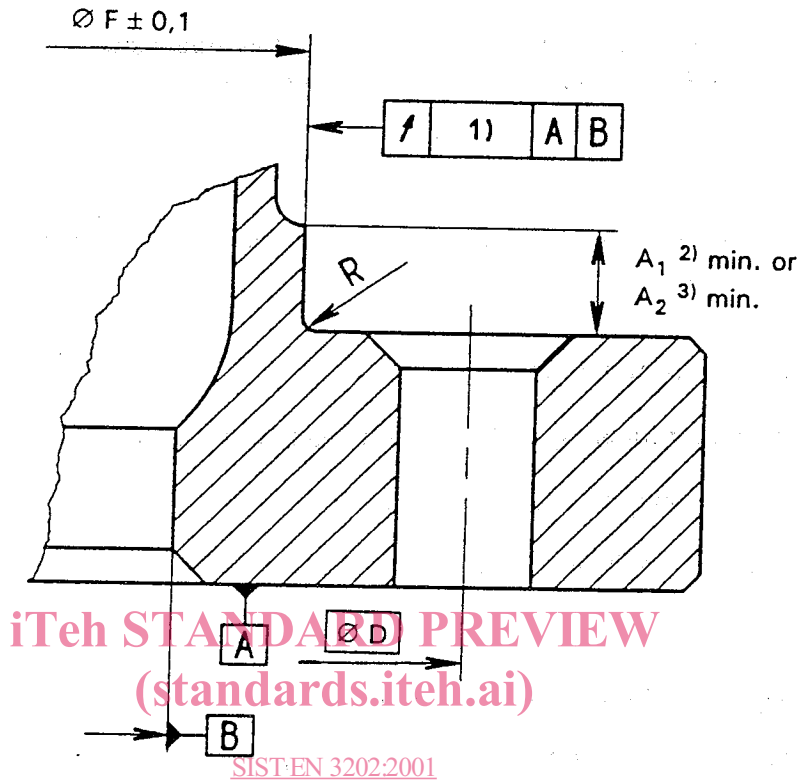
The trap dimensions are listed in table 1.

The hole dimensions are listed as follows :

- Relieved shank bolts in static parts : table 2 ;
- Close tolerance bolts in rotating parts : table 4 ;
- Close tolerance bolts used as positioning elements : table 6.

2.1 Traps

See figure 1 and table 1.



- 1) 0,15 for relieved shank bolts
0,05 for close tolerance bolts
- 2) Height in places where the bolt head is not visible during assembly.
- 3) Height in visible places

Figure 1

Table 1

Diameter code	Nominal bolt thread diameter	A_1 min. ^{1) 2)}	A_2 min. ²⁾	D ^{2) 3)}	F ²⁾	K + 0,1 0	R + 0,3 - 0,1	Bolt dimensions ²⁾	
								E ⁴⁾ max.	S ⁴⁾ max.
050	5	See 2.1.4.	3,4	70	See 2.1.2 and 2.1.3.	4,45	0,8	11,6	8,4
060	6		3,9			12,5		9,5	
070	7		4,5	80		5,5		13,9	10,5
080	8		5	90		6		14,5	11,5
100	10		5,8			6,9		17	13,3

1) Where this dimension cannot be achieved, a generous chamfer shall be used to prevent incorrect assembly.

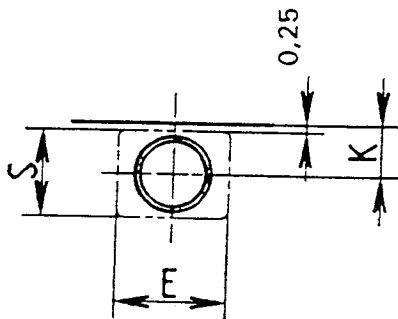
2) Dimensions do not form a part of designation.

3) Recommendation only. The minimum pitch circle diameter necessary for correct mating of the T-head bolts.

4) See the relevant product standard.

2.1.1 T-head bolts installed on a straight line

See figure 2 and table 1.

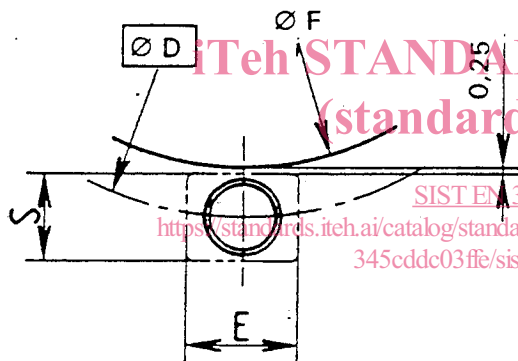


$$K \text{ min.} = \frac{S \text{ max.}}{2} + 0,25$$

Figure 2

2.1.2 Trap diameter F smaller than pitch circle diameter D

See figure 3 and table 1.



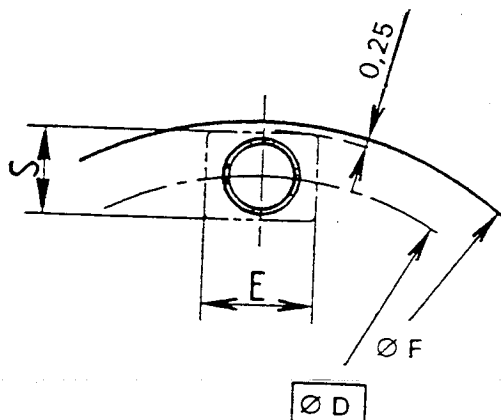
$$F \text{ max.} = D - S \text{ max.} - 0,5$$

$$F \text{ min.} = F \text{ max.} - 0,2$$

Figure 3

2.1.3 Trap diameter F greater than pitch circle diameter D

See figure 4 and table 1.



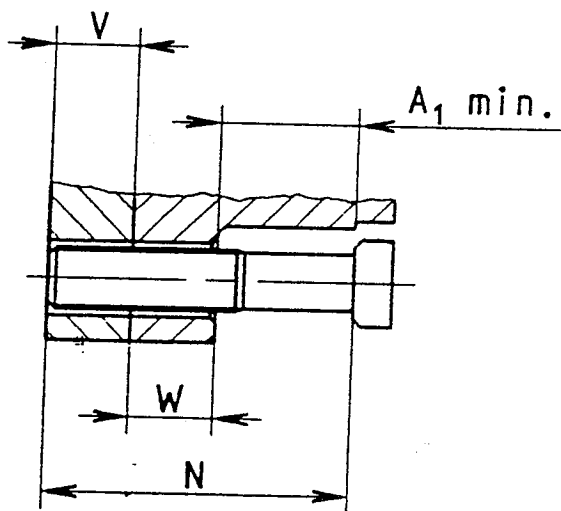
$$F \text{ min.} = \sqrt{(D + S \text{ max.})^2 + E \text{ max.}^2} + 0,5$$

$$F \text{ max.} = F \text{ min.} + 0,2$$

Figure 4

2.1.4 Trap height A_1 min.

See figure 5.



$$A_1 \text{ min.} = N - (V + W)$$

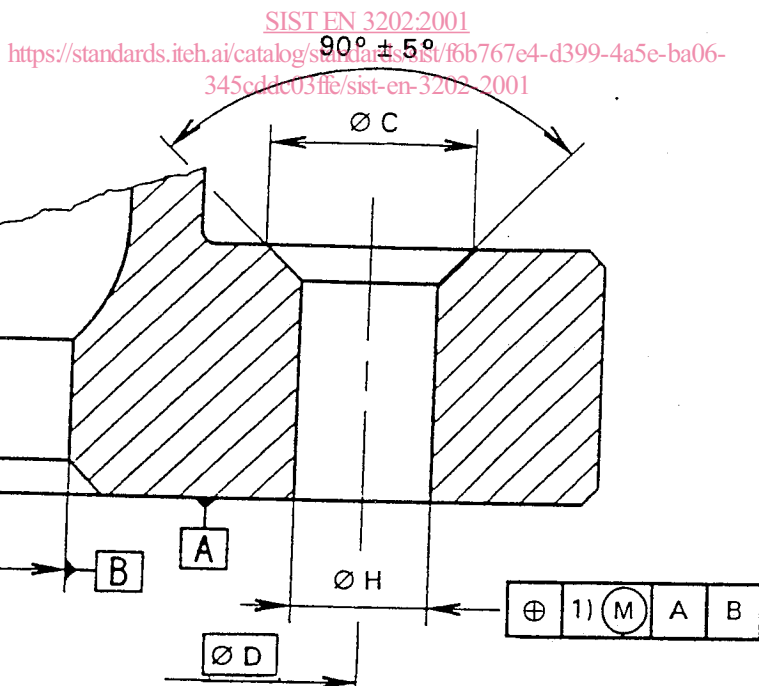
N max. bolt length
 $V + W$ min. clamped length

Figure 5

2.2 Holes

See figure 6.

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1) See 2.2.1, 2.2.2 or 2.2.3.

Figure 6

2.2.1 Holes for relieved shank bolts

See tables 2 and 3.

Table 2

Hole type code	Diameter code	Nominal bolt thread diameter	C		H	
			max.	min.	nom.	Tol. 1) H12
A	050	5	6,76	6,4	5,15	+ 0,12 0
	060	6	8,26	7,9	6,15	+ 0,15 0
	070	7	9,36	9	7,15	
	080	8	10,53	10,1	8,15	
	100	10	12,63	12,2	10,15	

1) The expression of the tolerance (symbol or value) is left to the designer's discretion.

Table 3

Pitch circle diameter D	Positional tolerance for H at maximum material condition
$0 < D \leq 250$	$\varnothing 0,08$
$250 < D \leq 600$	$\varnothing 0,1$
$600 < D \leq 1\,600$	$\varnothing 0,15$

2.2.2 Holes for close tolerance bolts

See tables 4 and 5.

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Table 4

Hole type code	Diameter code	Nominal bolt thread diameter	C		H	
			max.	min.	nom.	Tol. 1) F8
B	050	5	6,76	6,4	5	+ 0,028
	060	6	8,26	7,9	6	+ 0,01
	070	7	9,36	9	7	+ 0,035
	080	8	10,53	10,1	8	+ 0,013
	100	10	12,63	12,2	10	

1) The expression of the tolerance (symbol or value) is left to the designer's discretion.

Table 5

Pitch circle diameter D	Positional tolerance for H at maximum material condition
$0 < D \leq 75$	$\varnothing 0,04$
$75 < D \leq 250$	$\varnothing 0,05$
$250 < D \leq 750$	$\varnothing 0,08$
$750 < D \leq 1\,600$	$\varnothing 0,1$
$1\,600 < D \leq \text{---}$	$\varnothing 0,12$