



SLOVENSKI STANDARD
oSIST prEN 4892:2022
01-maj-2022

Aeronavtika - Sornik, zunanji spiralni pogon, s šestrobo glavo, natezna in strižna uporaba

Aerospace series - Bolt, External Spiral Drive, flange head, tension and shear application

Luft- und Raumfahrt - Verbindungselement mit Außengewinde und Spiral-Antrieb

Série aérospatiale - Vis, entraînement extérieur en spirale, tête-embase, application de traction-cisaillement

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: prEN 4892

oSIST prEN 4892:2022

<https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022>

ICS:

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

oSIST prEN 4892:2022

en,fr,de

**iTeh STANDARD
PREVIEW
(standards.iteh.ai)**

[oSIST prEN 4892:2022](https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022)

<https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 4892

March 2022

ICS

English Version

Aerospace series - Bolt, External Spiral Drive, flange head, tension and shear application

Série aérospatiale - Vis, entraînement extérieur en
spirale, tête-embase, application de traction-
cisaillement

Luft- und Raumfahrt - Verbindungselement mit
Außengewinde und Spiral-Antrieb

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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-CENELEC 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3
Introduction	4
1 Scope	5
2 Normative references.....	5
3 Terms and definitions	6
4 Requirements	6
4.1 Configuration, dimensions, tolerances.....	6
4.1.1 General.....	6
4.1.2 Grip lengths for bolts without hole in threads	10
4.1.3 Grip lengths for bolts requiring double locking with hole in threads (codes C, D, HC and HD)	13
4.1.4 Concentricity.....	15
4.1.5 Surface texture	15
4.2 Mechanical properties.....	16
4.3 Mass.....	17
4.4 Material and surface treatment.....	18
4.5 Specific requirements.....	19
4.6 Bolt geometry	19
4.7 Oversizes	19
4.7.1 First oversize	19
4.7.2 Second oversize	20
5 Designation.....	21
6 Marking.....	21
7 Technical specification.....	21
Bibliography.....	22

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

oSIST prEN 4892:2022
<https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022>

European foreword

This document (prEN 4892:2022) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

This document is currently submitted to the CEN Enquiry.

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[oSIST prEN 4892:2022](https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022)
<https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022>

prEN 4892:2022 (E)

Introduction

Aerospace and Defence Standardization (ASD-STAN) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent “Spiral Drive System for Threaded Fasteners” EP1025370B1.

ASD-STAN takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has ensured ASD-STAN that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ASD-STAN. Information may be obtained from:

The Phillips Screw Company

301 Edgewater Drive, Suite 320

Wakefield, Massachusetts, 01880

USA

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ASD-STAN shall not be held responsible for identifying any or all such patent rights.

ITEH STANDARD
PREVIEW
(standards.iteh.ai)

[oSIST prEN 4892:2022
https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-
a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022](https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022)

1 Scope

This document specifies the dimensions, tolerances, configuration and mass of a bolt, External Spiral Drive, flange head for use in tension and shear application for use in aerospace applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 2424, *Aerospace series - Marking of aerospace products*

EN 4473, *Aerospace series - Aluminium pigmented coatings for fasteners - Technical specification*

EN 4852, *Aerospace series - External spiral drive heads for threaded fasteners - Geometrical definition and fastener head wrenching configuration*

EN 6117, *Aerospace series — Specification for lubrication of fasteners with cetyl alcohol*¹

EN 6118, *Aerospace series — Process specification — Aluminium base protection for fasteners*¹

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

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

ASME B46.1, *Surface Texture (Surface Roughness, Waviness, and Lay)*²

NAS4008, *Fasteners, Corrosion Resistant Nickel Alloy 718, External Threaded, 220 KSI Ft_u, 125 KSI Fs_u, 900 °F*³

SAE AMS2700F, *Passivation of Corrosion Resistant Steels*⁴

SAE AMS5662N, *Nickel Alloy, Corrosion and Heat-Resistant, Bars, Forgings, and Rings 52.5Ni – 19Cr – 3.0Mo – 5.1Cb (Nb) – 0.90Ti – 0.50Al – 18Fe Consumable Electrode or Vacuum Induction Melted 1 775 °F (968 °C) Solution Heat Treated, Precipitation-Hardenable*⁴

SAE AMS5842G, *Cobalt-Nickel Alloy, Corrosion and Heat-Resistant, Bars 19Cr – 36Co – 25Ni – 7.0Mo – 0.50Cb (Nb) – 2.9Ti – 0.20Al – 9.0Fe Vacuum Induction Plus Vacuum Consumable Electrode Melted Solution Heat Treated and Work Strengthened*⁴

SAE AMS5962A, *Nickel Alloy, Corrosion and Heat-Resistant, Round Bars and Wire 52.5Ni – 19Cr – 3.0Mo – 5.1Cb – 0.90Ti – 0.50Al – 18Fe Consumable Electrode or Vacuum Induction Melted 1 775 °F (968 °C) Solution Treated and Work Strengthened Precipitation Hardenable*⁴

SAE AS1701F, *Lubricant, Solid Film*⁴

-
- 1 Published as ASD-STAN Prestandard at the date of publication of this standard by AeroSpace and Defence Industries Association of Europe – Standardization (ASD-STAN) (www.asd-stan.org).
 - 2 Published by American Society of Mechanical Engineers (ASME), available at: <https://www.asme.org/>.
 - 3 Published by Aerospace Industries Association (AIA), available at: <https://www.aia-aerospace.org/>.
 - 4 Published by Society of Automotive Engineers (SAE), available at: <https://www.sae.org/>.

prEN 4892:2022 (E)

SAE AS7475E, Bolts, Cobalt-Chromium-Nickel Alloy, UNS R30159, Tensile Strength 260 ksi, Procurement Specification⁴

SAE AS8879D, Screw Threads — UNJ Profile, Inch Controlled Radius Root with Increased Minor Diameter⁴

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Requirements**4.1 Configuration, dimensions, tolerances****4.1.1 General**

Configuration shall be according to Figure 1.

Dimensions shall be according to Figure 1, Table 1, Table 2, Table 3, Table 9 and Table 10.

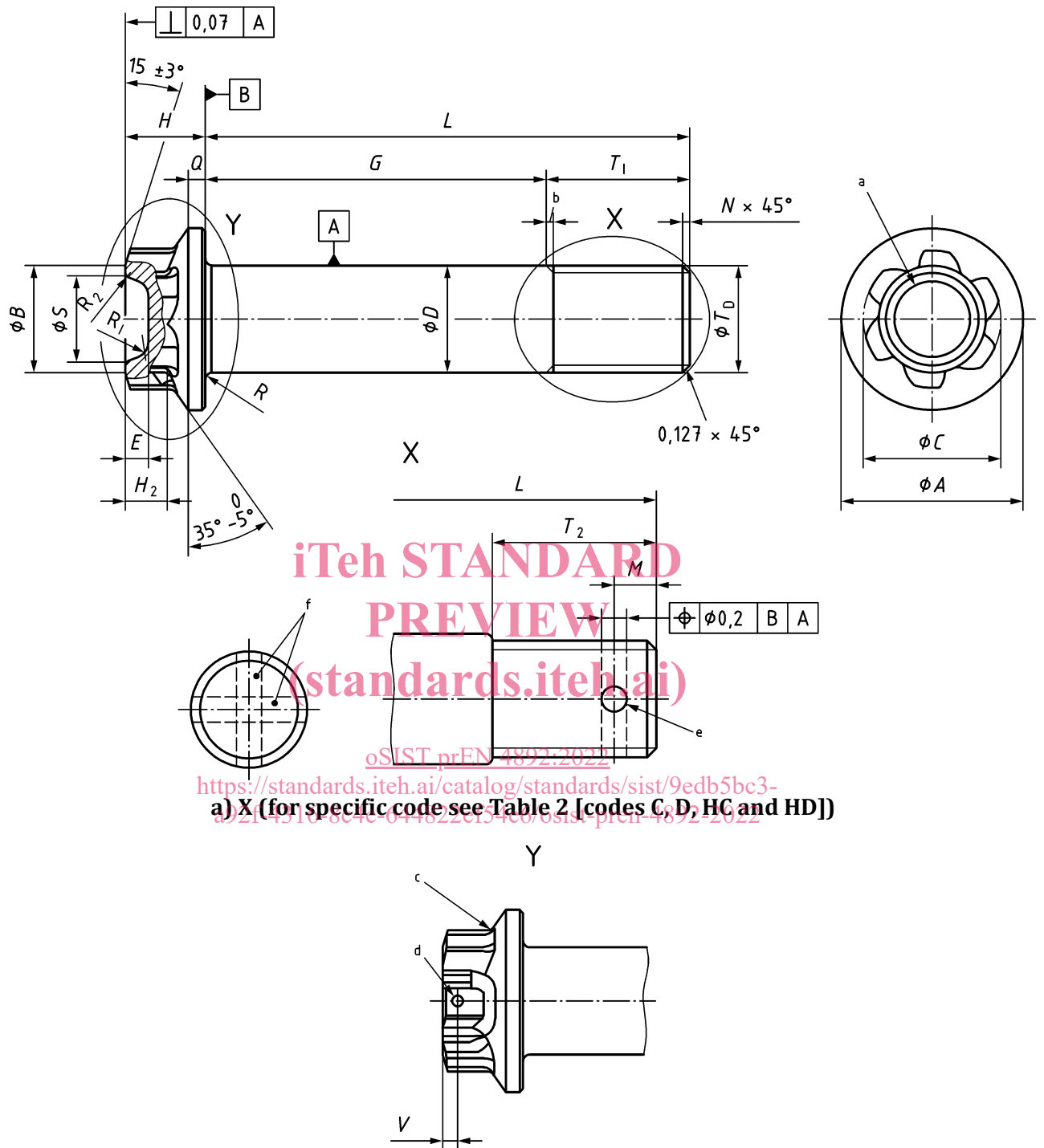
Dimensions are defined after surface treatment and before lubricant application.

Break sharp edges after drilling hole into thread or bolt head, required by specific code indicated in Table 2.

Tolerances not specified shall be according to ISO 2768-1.

[oSIST prEN 4892:2022
https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-
a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022](https://standards.iteh.ai/catalog/standards/sist/9edb5bc3-a92f-4316-8c4e-644822ef54e6/osist-pren-4892-2022)

Dimensions in millimetres



b) Y for A and D code (for specific code see Table 2 [codes H, HD and HC])

- a Marking see section 5.
- b 2 imperfect threads max.
- c Radius here formed by Die profile.
- d 4 holes with $\varnothing F$ in specified.
- e Drill 2 holes diameter P when C, D, HC or HD specific code is requested.
- f Yellow paint for thread drill hole location when C or HC specific code is requested.

Figure 1 — Bolt configuration

prEN 4892:2022 (E)

Table 1 — Dimensions

Dimensions in millimetres

Diameter code No.		4	5	6	7	8	9	10	12	14	16	18	19	20	22	
Thread according to ISO 3161		.2500-28UNJF-3A	.3125-24UNJF-3A	.3750-24UNJF-3A	.4375-20UNJF-3A	.5000-20UNJF-3A	.5625-18UNJF-3A	.6250-18UNJF-3A	.7500-16UNJF-3A	.8750-14UNJF-3A	1.0000-12UNJF-3A	1.1250-12UNJF-3A	1.1875-12UNJF-3A	1.2500-12UNJF-3A	1.3750-12UNJF-3A	
Nominal shank diameter		6,35	7,94	9,52	11,11	12,7	14,29	15,88	19,05	22,22	25,4	28,58	30,17	31,75	34,92	
ø A	min.	10,87	13,233	16,23	18,796	20,777	23,571	26,416	30,988	36,271	41,021	47,371	53,721	54,93	59,563	
	max.	11,125	13,487	16,484	19,05	21,031	23,825	26,67	31,242	36,525	41,275	47,625	53,975	55,18	59,817	
ø B	min.	6,92	8,27	9,59	11,01	12,47	13,83	16,67	19,81	20,74	22,11	24,91	27,62	29,05	30,42	
	max.	7,3	8,651	9,971	11,391	12,851	14,211	17,051	20,191	21,121	22,491	25,291	28,001	29,431	30,801	
ø D	min.	6,312	7,899	9,487	11,074	12,661	14,236	15,824	18,999	22,174	25,349	28,512	30,099	31,689	34,862	
	max.	6,337	7,925	9,512	11,099	12,687	14,262	15,849	19,024	22,199	25,374	28,55	30,137	31,714	34,9	
ø T _D (Major dia.)	min.	6,121	7,67	9,245	10,82	12,395	13,97	15,545	18,72	21,869	25,044	28,194	29,781	31,232	34,382	
	max.	6,197	7,772	9,347	10,947	12,522	14,097	15,697	18,872	22,047	25,222	28,372	29,959	31,532	34,706	
E	max.	1,52	1,83	2,11	2,41	2,72	3,02	3,63	4,32	4,52	4,83	5,41	6,02	6,32	6,6	
F	min.	0,812	1,27													
	max.	1,066	1,524													
H	min.	5,49	6,55	7,87	9,27	10,54	11,99	13,77	15,88	18,03	20,14	22,81	27,4	28,96	32,79	
	max.	5,99	7,05	8,37	9,77	11,04	12,49	14,27	16,38	18,53	20,64	23,31	27,9	29,46	33,29	
H ₂	min.	3,3	3,81	4,32	5,11	5,99	6,73	8,41	9,6	9,96	10,41	11,4	14,31	14,22	15,16	
Drive Size		MTS-X10	MTS-X12	MTS-X14	MTS-X16	MTS-X18	MTS-X20	MTS-X24	MTS-X29	MTS-X30	MTS-X32	MTS-X36	MTS-X40	MTS-X42	MTS-X44	
a	M	min.	—	—	4,394	—	5,22	5,66	—	—	—	5,66	—	5,66	5,66	5,66
		max.	—	—	4,902	—	5,73	6,17	—	—	—	6,17	—	6,17	6,17	6,17
	Nx45° Ref		1,016	1,27	1,27	1,524	1,524	1,778	1,778	2,032	2,286	2,54	2,54	2,54	2,54	2,54

Diameter code No.			4	5	6	7	8	9	10	12	14	16	18	19	20	22
Thread according to ISO 3161			.2500-28UNJF-3A	.3125-24UNJF-3A	.3750-24UNJF-3A	.4375-20UNJF-3A	.5000-20UNJF-3A	.5625-18UNJF-3A	.6250-18UNJF-3A	.7500-16UNJF-3A	.8750-14UNJF-3A	1.0000-12UNJF-3A	1.1250-12UNJF-3A	1.1875-12UNJF-3A	1.2500-12UNJF-3A	1.3750-12UNJF-3A
Nominal shank diameter			6,35	7,94	9,52	11,11	12,7	14,29	15,88	19,05	22,22	25,4	28,58	30,17	31,75	34,92
øP	b	min.	1,93		2,692				3,581							
		max.	2,184		2,946				3,835							
R	min.	0,787		1,194				1,6				1,956				
	max.	1,041		1,448				1,854				2,261				
Q	min.	0,77	1,02	1,27	1,53	1,78	2,04	2,29	2,54	3,05	3,56	4,07	4,58	6,33	8,13	
	max.	1,27	1,52	1,77	2,03	2,28	2,54	2,79	3,04	3,55	4,06	4,57	5,08	6,83	8,63	
S	min.	5,26	6,33	7,4	8,49	9,61	10,7	12,91	15,4	16,13	17,2	19,36	21,52	22,64	23,7	
	max.	5,76	6,83	7,9	8,99	10,11	11,2	13,41	15,9	16,63	17,7	19,86	22,02	23,14	24,2	
T1 Ref	Code “-” and H		12,471	15,136	16,916	19,172	20,642	22,457	24,037	26,848	30,138	36,765	42,955	44,815	45,165	48,165
T2 Ref	Codes C, D, HC and HD		—	—	21,61	—	27,94	28,45	—	—	—	45,17	—	53,22	53,56	56,57
C	min.	9,14	10,72	12,62	14,45	16,31	18,08	21,77	25,85	27,05	28,83	32,44	35,99	37,82	39,6	
	max.	9,25	10,82	12,73	14,55	16,46	18,24	21,92	26	27,2	28,98	32,59	36,14	37,97	39,75	
X		0,127	0,152	0,203	0,228	0,254	0,279	0,305	0,381	0,457	0,508	0,558	0,558	0,635	0,635	
Y		0,114	0,114	0,114	0,152	0,152	0,152	0,152	0,152	0,229	0,229	0,229	0,229	0,229	0,229	
V	min.	1,455	1,658	1,658	1,658	2,268	2,268	2,268	2,268	3,055	3,055	3,055	3,055	3,055	3,055	
	max.	1,695	1,898	1,898	1,898	2,508	2,508	2,508	2,508	3,295	3,295	3,295	3,295	3,295	3,295	
<p>^a X (refer to Figure 1).</p> <p>^b Specific code D.</p>																