

Aerospace series - Sleeves, tubular, protruding head, in corrosion resisting steel, passivated (0,25 mm wall thickness)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 3278:2019 sisaldab Euroopa standardi EN 3278:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 3278:2019 consists of the English text of the European standard EN 3278:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
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Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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English Version

**Aerospace series - Sleeves, tubular, protruding head, in  
corrosion resisting steel, passivated (0,25 mm wall  
thickness)**

Série aérospatiale - Douilles tubulaires, tête saillante  
en acier résistant à la corrosion (Épaisseur de paroi 0,25  
mm)

Luft- und Raumfahrt - Hülsen, überstehender Kopf, aus  
korrosionsbeständigem Stahl, passiviert (Wanddicke  
0,25 mm)

This European Standard was approved by CEN on 1 March 2019.

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 CEN-CENELEC Management Centre 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 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.



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

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## European foreword

This document (EN 3278:2019) 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 April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

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

This document supersedes EN 3278:2012.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European standard specifies the characteristics and technical requirements for protruding head tubular sleeves, in corrosion resisting steel, which may be plain or provided with a series of annular grooves.

Passivated sleeves are for use in aerospace assemblies whose maximum operating temperature does not exceed 650 °C. The operating temperatures for aluminium pigmented sleeves should not exceed 230 °C.

## 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 2175, Heat resisting alloy FE-PA2602 (X4NiCrTiMoV26-15) — Solution treated and precipitation treated — Sheet, strip and plate — 0,5 mm ≤ a ≤ 10 mm —  $R_m \geq 850 \text{ MPa}$ <sup>1</sup>

EN 2424, *Aerospace series — Marking of aerospace products*

EN 2516, *Aerospace series — Passivation of corrosion resisting steels and decontamination of nickel base alloys*

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<sup>1</sup> Published as ASD-STAN Prestandard at the date of publication of this European standard by AeroSpace and Defence Industries Association of Europe – Standardization (ASD-STAN) ([www.asd-stan.org/](http://www.asd-stan.org/)).

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

ISO 2859-1, *Sampling procedures and tables for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

**3.1**  
**crack**  
rupture in the material which may extend in any direction and which may be intercrystalline or transcrystalline in character

**3.2**  
**seam**  
open surface defect which is the result of the extrusion of the material

**3.3**  
**lap**  
surface defect caused by folding over metal fins or sharp corners and then rolling or forging them into the surface

### 4 Required characteristics

#### 4.1 Configuration — Dimensions — Tolerances

The configuration shall be in accordance with Figure 1; the dimensions and tolerances shall conform to the values shown in Figure 1, in Table 1, and Table 2 after surface treatment.

#### 4.2 Surface roughness

See Figure 1.

The values apply prior to application of aluminium pigmented coating respectively after passivation.

#### 4.3 Material

Material steel shall be in accordance with EN 2175, received in the annealed condition and cold worked during manufacture.

#### 4.4 Surface treatment

None: Passivation according to EN 2516.

Code “Z”: aluminium pigmented coating according to EN 4473 type IV.

NOTE Coating required on sleeve outer surface only, coating on inner surface depends on manufacturer's option.