
Aeronavtika - Jeklo FE-PA11 - Utrjeno in mehko žarjeno - Cevi - $0,5 \text{ mm} \leq a \leq 5 \text{ mm}$

Aerospace series - Steel FE-PA11 - Softened - Tubes - $0,5 \text{ mm} \leq a \leq 5 \text{ mm}$

Luft- und Raumfahrt - Stahl FE-PA11 - Abgeschreckt - Rohre - $0,5 \text{ mm} \leq a \leq 5 \text{ mm}$

Série aérospatiale - Acier FE-PA11 - Trempé - Tubes - $0,5 \text{ mm} \leq a \leq 5 \text{ mm}$

Ta slovenski standard je istoveten z: EN 2468:2019

[SIST EN 2468:2019](https://standards.iteh.ai/catalog/standards/sist/7f8eebdc-59d8-4b35-b128-f035020c9601/sist-en-2468-2019)

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EUROPEAN STANDARD

EN 2468

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2019

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English Version

Aerospace series - Steel FE-PA11 - Softened - Tubes - 0,5 mm ≤ a ≤ 5 mm

Série aéronautique - Acier FE-PA11 - Trempé - Tubes -
0,5 mm ≤ a ≤ 5 mm

Luft- und Raumfahrt - Stahl FE-PA11 - Abgeschreckt -
Rohre - 0,5 mm ≤ a ≤ 5 mm

This European Standard was approved by CEN on 20 August 2018.

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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-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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

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

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European foreword

This document (EN 2468:2019) 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 October 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

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.

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EN 2468:2019 (E)

Introduction

This document is part of the series of EN metallic material standards for aerospace applications. The general organization of this series is described in EN 4258.

This document has been prepared in accordance with EN 4500-005.

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1 Scope

This document specifies the requirements relating to:

Steel FE-PA11
Softened
Tubes
 $0,5 \text{ mm} \leq a \leq 5 \text{ mm}$

for 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 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use*

EN 4500-005, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 005: Specific rules for steels*

EN 4700-003, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 003: Tube*

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

Table 1 shows the requirements for steel FE-PA11 — Softened — Tubes — $0,5 \text{ mm} \leq a \leq 5 \text{ mm}$.

EN 2468:2019 (E)

Table 1 — Requirements for Steel FE-PA11 — Softened — Tubes — $0,5 \text{ mm} \leq a \leq 5 \text{ mm}$

| | | | | | | | | | | | |
|-----|-------------------------|---------------|---|------|------|-------|-------|------|----|------|--|
| 1 | Material designation | Steel FE-PA11 | | | | | | | | | |
| 2 | Chemical composition % | Element | C | Si | Mn | P | S | Cr | Mo | Ni | |
| | | min. | - | - | - | - | - | 17,0 | - | 9,0 | |
| | | max. | 0,030 | 1,00 | 2,00 | 0,035 | 0,025 | 19,0 | - | 12,0 | |
| 3 | Method of melting | Air melted | | | | | | | | | |
| 4.1 | Form | Tubes | | | | | | | | | |
| 4.2 | Method of production | - | | | | | | | | | |
| 4.3 | Limit dimension(s) | mm | $0,5 \text{ mm} \leq a \leq 5 \text{ mm}$ | | | | | | | | |
| 5 | Technical specification | EN 4700-003 | | | | | | | | | |

| | | | | | | | | | | |
|-----|-------------------------|---|--|--|--|--|--|--|--|--|
| 6.1 | Delivery condition | Softened | | | | | | | | |
| | Heat treatment | $1\ 000 \text{ °C} \leq \theta \leq 1\ 050 \text{ °C/AQ or WQ}$ | | | | | | | | |
| 6.2 | Delivery condition code | - | | | | | | | | |
| 7 | Use condition | Softened | | | | | | | | |
| | Heat treatment | Delivery condition | | | | | | | | |

iTeh STANDARD PREVIEW Characteristics

| | | | | | | | | | | | | | | |
|-----|------------------------------------|--|---------------------|-------------------------|---------------|--|--|--|-------------------------|---------------|--|--|--|--|
| 8.1 | Test sample(s) | (standards.iteh.ai) Bar: $D = 16 \text{ mm}$ | | | | | | | | | | | | |
| 8.2 | Test piece(s) | - Reference ^a (see line 29) | | | | | | | | | | | | |
| 8.3 | Heat treatment | Softened | | | | | | | | | | | | |
| 9 | Dimensions concerned | mm | $0,5 \leq a \leq 5$ | | | | | | | | | | | |
| 10 | Thickness of cladding on each face | % | - | | | | | | | | | | | |
| 11 | Direction of test piece | - | | | | | | | | | | | | |
| 12 | Temperature | θ | °C | Ambient | | | | | | | | | | |
| 13 | Proof stress | $R_{p0,2}$ | MPa* | ≥ 180 | | | | | ≥ 180 | | | | | |
| 14 | T Strength | R_m | MPa* | $450 \leq R_m \leq 650$ | | | | | $450 \leq R_m \leq 650$ | | | | | |
| 15 | Elongation | A | % | $\geq 40 (\geq 35)^b$ | | | | | ≥ 45 | | | | | |
| 16 | Reduction of area | Z | % | - | | | | | - | | | | | |
| 17 | Hardness | | | | $HV \leq 196$ | | | | | $HB \leq 187$ | | | | |
| 18 | Shear strength | R_c | MPa* | - | | | | | | | | | | |
| 19 | Bending | k | - | - | | | | | | | | | | |
| 20 | Impact strength | | | | - | | | | | ≥ 60 | | | | |
| 21 | Temperature | θ | °C | - | | | | | | | | | | |
| 22 | Time | | | h | - | | | | | | | | | |
| 23 | Stress | σ_a | MPa* | - | | | | | | | | | | |
| 24 | Elongation | a | % | - | | | | | | | | | | |
| 25 | Rupture stress | σ_R | MPa* | - | | | | | | | | | | |
| 26 | Elongation at rupture | A | % | - | | | | | | | | | | |
| 27 | Notes (see line 98) | *, a, b | | | | | | | | | | | | |

| | | | |
|----|--------------------------|---|---|
| 29 | Reference heat treatment | - | Softened 1 040 °C ± 10 °C/WQ |
| 95 | Marking inspection | - | - |
| 96 | Dimensional inspection | - | - |
| 98 | Notes | - | * 1 MPa = 1 N/mm ² . a Optional test. b Value in brackets for strip test pieces. |
| 99 | Typical use | - | Austenitic corrosion resisting steel. |

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