



**NSAI**  
Standards

Irish Standard  
I.S. EN 3685:2019

Aerospace series - Bolts in heat resisting steel FE-PA2601 (A286) - Classification: 1 100 MPa/650 °C - Technical specification

**I.S. EN 3685:2019**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN 3685:2019 is the adopted Irish version of the European Document EN 3685:2019, Aerospace series - Bolts in heat resisting steel FE-PA2601 (A286) - Classification: 1 100 MPa/650 °C - Technical specification

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**EUROPEAN STANDARD**

**EN 3685**

**NORME EUROPÉENNE**

**EUROPÄISCHE NORM**

August 2019

ICS 49.030.20

Supersedes EN 3685:2008

English Version

**Aerospace series - Bolts in heat resisting steel FE-PA2601  
(A286) - Classification: 1 100 MPa/650 °C - Technical  
specification**

Série aérospatiale - Vis en acier résistant à chaud FE-  
PA2601 (A286) - Classification : 1 100 MPa/650 °C -  
Spécification technique

Luft- und Raumfahrt - Schrauben aus hochwarmfestem  
Stahl FE-PA2601 (A286) - Klasse: 1 100 MPa/650 °C -  
Technische Lieferbedingungen

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

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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.

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## **European foreword**

This document (EN 3685:2019) 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of an identical text or by endorsement, at the latest by February 2020, and conflicting national standards shall be withdrawn at the latest by February 2020.

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

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## EN 3685:2019 (E)

## 1 Scope

This European standard specifies the technical specification, qualification and quality assurance requirements for bolts in material FE-PA2601 (A286) of tensile strength class 1 100 MPa at room temperature, maximum test temperature of material 650 °C.

Primarily for aerospace applications it is applicable to such bolts when referenced on the product standard or definition document.

## 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 3041, *Aerospace series — Propulsion standard parts — Manufacturing process change procedure for qualified parts*<sup>1</sup>

EN 3761, *Aerospace series — Heat resisting alloy FE-PA2601 — Softened and cold worked — Bar for forged fasteners —  $D \leq 50 \text{ mm}$  —  $1\ 100 \text{ MPa} \leq R_m \leq 1\ 300 \text{ MPa}$* <sup>2</sup>

EN ISO 3452-1, *Non-destructive testing — Penetrant testing — Part 1: General principles*

EN ISO 4288, *Geometrical product specifications (GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture*

EN ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

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

ISO 7961, *Aerospace series — Bolts — Test methods*

ASD-STAN/TR 3040-1, *Aerospace series — Quality assurance — EN aerospace products — Part 1: List of approved manufacturers*<sup>3</sup>

ASD-STAN/TR 3775, *Bolts and pins — Materials*<sup>3</sup>

ASTM E112, *Standard Test Methods for Determining Average Grain Size*<sup>4</sup>

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1 In preparation at the date of publication of this European standard ([www.asd-stan.org](http://www.asd-stan.org)).

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