



BSI Standards Publication

**Aerospace series — Steel
FE-PL1505 (15CrMoV6) —
1 080 MPa ≤ R_m ≤ 1 250 MPa
— Forgings — D_e ≤ 100 mm**

National foreword

This British Standard is the UK implementation of EN 2252:2012.

The UK participation in its preparation was entrusted to Technical Committee ACE/61-/15, Steels for Aerospace Purposes.

A list of organizations represented on this committee can be obtained on request to its secretary.

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EUROPEAN STANDARD

EN 2252

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2012

ICS 49.025.10

English Version

**Aerospace series - Steel FE-PL1505 (15CrMoV6) - 1 080 MPa ≤
Rm ≤ 1 250 MPa - Forgings - De ≤ 100 mm**

Série aérospatiale - Acier FE-PL1505 (15CrMoV6) - 1 080
MPa ≤ Rm ≤ 1 250 MPa - Pièces forgées et matricées - De
≤ 100 mm

Luft- und Raumfahrt - Stahl FE-PL1505 (15CrMoV6) - 1
080 MPa ≤ Rm ≤ 1 250 MPa - Gesenk- und
Freiformschmiedestücke - De ≤ 100 mm

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Foreword

This document (EN 2252:2012) 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of an identical text or by endorsement, at the latest by August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.

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Introduction

This European Standard 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 European Standard has been prepared in accordance with EN 4500-5.

1 Scope

This European Standard specifies the requirements relating to:

Steel FE-PL1505 (15CrMoV6)
 $1\ 080\ \text{MPa} \leq R_m \leq 1\ 250\ \text{MPa}$
Forgings
 $D_e \leq 100\ \text{mm}$

for aerospace applications.

2 Normative references

The following referenced documents are indispensable for the application 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 4050-4, *Aerospace series — Test method for metallic materials — Part 4: Acceptance criteria*

EN 4700-005, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 005: Forging stock*

EN 4700-006, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 006: Pre-production and production forgings*

BS EN 2252:2012
EN 2252:2012 (E)

| | | | | | | | | | | | |
|-----|-------------------------|---------|---|------|------|-------|-------|------|------|------|------|
| 1 | Material designation | | Steel FE-PL1505 (15CrMoV6) | | | | | | | | |
| 2 | Chemical composition % | Element | C | Si | Mn | P | S | Cr | Mo | V | Fe |
| | | min. | 0,12 | – | 0,80 | – | – | 1,25 | 0,80 | 0,20 | Base |
| | | max. | 0,18 | 0,20 | 1,10 | 0,020 | 0,015 | 1,50 | 1,00 | 0,30 | |
| 3 | Method of melting | | Air melted | | | | | | | | |
| 4.1 | Form | | Forgings | | | | | | | | |
| 4.2 | Method of production | | forged from forging stock EN 4700-005 * | | | | | | | | |
| 4.3 | Limit dimension(s) | mm | $D_e \leq 100$ | | | | | | | | |
| 5 | Technical specification | | EN 4700-006 | | | | | | | | |

| | | | | | | | | | | |
|-----|-------------------------|--|---|--|--|--|---|--|--|--|
| 6.1 | Delivery condition | | Annealed | | | | Hardened and tempered | | | |
| | Heat treatment | | – | | | | 955 °C ≤ θ ≤ 995 °C / WQ or OQ + 595 °C ≤ θ ≤ 645 °C | | | |
| 6.2 | Delivery condition code | | A | | | | U | | | |
| 7 | Use condition | | Hardened and tempered | | | | Delivery condition | | | |
| | Heat treatment | | Delivery condition + 955 °C ≤ θ ≤ 995 °C / WQ or OQ + 595 °C ≤ θ ≤ 645 °C | | | | – | | | |

Characteristics

| | | | | | | | | | | | |
|-----|------------------------------------|------------|------------------|---------|--|--|-----------------------|-----------------------|--|--|--|
| 8.1 | Test sample(s) | | See EN 4700-006. | | | | | | | | |
| 8.2 | Test piece(s) | | See EN 4700-006. | | | | | | | | |
| 8.3 | Heat treatment | | Annealed | | | | Hardened and tempered | | | | |
| 9 | Dimensions concerned | mm | $D_e \leq 100$ | | | | | | | | |
| 10 | Thickness of cladding on each face | % | – | | | | | | | | |
| 11 | Direction of test piece | | L | | | | | | | | |
| 12 | Temperature | θ | °C | Ambient | | | | | | | |
| 13 | Proof stress | $R_{p0,2}$ | MPa | – | | | | ≥ 930 | | | |
| 14 | T Strength | R_m | MPa | – | | | | 1 080 ≤ R_m ≤ 1 250 | | | |
| 15 | Elongation | A | % | – | | | | ≥ 10 | | | |
| 16 | Reduction of area | Z | % | – | | | | – | | | |
| 17 | Hardness | | HB ≤ 197 | | | | 321 ≤ HB ≤ 380 | | | | |
| 18 | Shear strength | R_c | MPa | – | | | | | | | |
| 19 | Bending | k | – | – | | | | | | | |
| 20 | Impact strength | KV | J | – | | | | ≥ 30 | | | |
| 21 | Temperature | θ | °C | – | | | | | | | |
| 22 | Time | | h | – | | | | | | | |
| 23 | C Stress | σ_a | MPa | – | | | | | | | |
| 24 | C Elongation | a | % | – | | | | | | | |
| 25 | C Rupture stress | σ_R | MPa | – | | | | | | | |
| 26 | C Elongation at rupture | A | % | – | | | | | | | |
| 27 | Notes (see line 98) | | – | | | | | | | | |

| | | | |
|----|-----------------------------|---|----------------------------------|
| 34 | Grain size | – | See EN 4700-006. |
| | | 7 | G ≥ 5 |
| 44 | External defects | – | See EN 4700-006. |
| 51 | Macrostructure (Grain flow) | – | See EN 4700-006. |
| 61 | Internal defects | – | See EN 4700-006. |
| | | 1 | EN 4050-4 |
| | | 7 | Class 2 |
| | | | |
| 95 | Marking inspection | – | See EN 4700-006. |
| 96 | Dimensional inspection | – | See EN 4700-006. |
| 98 | Notes | – | – |
| 99 | Typical use | – | Low alloy general purpose steel. |

| | | | | |
|-----|---|-----------------------|---|--|
| 100 | - | Product qualification | - | - |
| | | | | Qualification programme to be agreed between manufacturer and purchaser. |
| | | | | |

Bibliography

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

EN 4500-5, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 5: Specific rules for steels* ¹⁾

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).

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