

Inserts, thickwall, self-locking, MJ threads, in heat resisting steel FE-PM3801 (17-4PH) — Technical specification

The European Standard EN 3899:2003 has the status of a
British Standard

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National foreword

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English version

**Aerospace series - Inserts, thickwall, self-locking, MJ threads, in
heat resisting steel FE-PM3801 (17-4PH) - Technical
specification**

This European Standard was approved by CEN on 2 June 2002.

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Foreword

This document (EN 3899:2003) has been prepared by the European Association of Aerospace Manufacturers – Standardization (AECMA-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 AECMA, 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of an identical text or by endorsement, at the latest by July 2003, and conflicting national standards shall be withdrawn at the latest by July 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the characteristics, qualification and acceptance requirements for self-locking thickwall inserts with MJ threads, in FE-PM3801, for aerospace applications.

It is applicable whenever referenced.

2 Normative references

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 3452	Non-destructive testing – Penetrant inspection – General principles
ISO 4288	Geometrical Product Specifications (GPS) – Surface texture: Profile method – Rules and procedures for the assessment of surface texture
ISO 5855-2	Aerospace – MJ threads – Part 2: Limit dimensions for bolts and nuts
ISO 7481	Aerospace – Nuts, self-locking, with maximum operating temperature less than or equal to 425 °C – Test methods
EN 2638	Aerospace series – Aluminium alloy 2024-T3 – extruded bar and section – 1,2 (a or D) 150 mm with coarse peripheral grain control ¹⁾
EN 3042	Aerospace series – Quality assurance - EN aerospace products – Qualification procedure
EN 4014	Aerospace series – Inserts, thickwall, self-locking – Design standard ¹⁾
EN 4015	Aerospace series – Inserts, thickwall, self-locking – Installation and removal procedure ¹⁾
ASTM E112-96	Standard Test Methods for Determining Average Grain Size ²⁾

¹⁾ Published as AECMA Prestandard at the date of publication of this standard

3 Terms and definitions

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

3.1

batch

quantity of finished thickwall inserts, of the same type and same diameter, produced from a material obtained from the same melt, manufactured in the course of the same production cycle, following the same manufacturing route and having undergone all the relevant heat treatments and surface treatments

3.2 Surface discontinuities

3.2.1

crack

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

3.2.2

seam

open surface defect

3.2.3

lap

surface defect caused by folding over metal fins or sharp corners and then compressing them into the surface

3.2.4

inclusions

non-metallic particles originating from the material manufacturing process. These particles may be isolated or arranged in strings.

3.3

test temperature

ambient temperature, unless otherwise specified

3.4

simple random sampling

the taking of n items from a population of N items in such a way that all possible combinations of n items have the same probability of being chosen

3.5

critical defect

defect that, according to judgement and experience, is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the considered product, or that is likely to prevent performance of the function of a major end item

3.6

major defect

defect other than critical, that is likely to result in a failure or to reduce materially the usability of the considered product for its intended purpose

3.7

minor defect

defect that is not likely to reduce materially the usability of the considered product for its intended purpose, or that is a departure from established specification having little bearing on the effective use or operation of this product

3.8

sampling plan

plan according to which one or more samples are taken in order to obtain information and possibly to reach a decision

3.9

limiting quality

(sampling plan) the quality level which corresponds to a specified and relatively low probability of acceptance

NOTE 1 It is the limiting lot quality characteristic that the consumer is willing to accept with a low probability that a lot of this quality would occur.

NOTE 2 For the purposes of this Standard, the limiting quality quoted in table 4 corresponds to a probability of acceptance of 10%.

3.10

acceptance quality limit

AQL

maximum per cent defective (or the maximum number of defects per hundred units) that, for purposes of sampling inspection can be considered satisfactory as a process average

NOTE Variant: quality limit which in a sampling plan corresponds to a specified but relatively high probability of acceptance.

3.11

finished thickwall insert

thickwall insert ready for use, inclusive of any possible treatments and/or surface coatings, as specified in the product standard or definition document

3.12

definition document

document specifying all the requirements for finished thick wall inserts

3.13

self-locking torque

torque to be applied to the associated bolt to maintain its movement of rotation in relation to the thickwall insert assembly which is under no axial load and the insert locking zone being completely engaged with the bolt (minimum protrusion of two pitches, including the end chamfer)

3.14

seating torque

tightening torque to be applied to the thickwall insert and bolt assembly to introduce or to increase the axial load in the assembly

3.15

unseating torque

untightening torque to be applied to the thickwall insert and bolt assembly to reduce or remove the axial load in the assembly