



BSI Standards Publication

**Aerospace series — Shank  
nuts, self-locking, in heat  
resisting nickel base alloy NI-  
P101HT (Waspaloy), silver  
plated, for 30°C swage —  
Classification: 1 210 MPa (at  
ambient temperature) / 730°C**

**National foreword**

This British Standard is the UK implementation of EN 3672:2016. It supersedes BS EN 3672:2008 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ACE/12, Aerospace fasteners and fastening systems.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2017.

Published by BSI Standards Limited 2017

ISBN 978 0 580 92608 2

ICS 49.030.30

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 January 2017.

**Amendments/corrigenda issued since publication**

Date	Text affected
------	---------------

---

EUROPEAN STANDARD

**EN 3672**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2016

ICS 49.030.30

Supersedes EN 3672:2008

English Version

**Aerospace series - Shank nuts, self-locking, in heat  
resisting nickel base alloy NI-P101HT (Waspaloy), silver  
plated, for 30°C swage - Classification: 1 210 MPa (at  
ambient temperature) / 730°C**

Série aérospatiale - Écrous à sertir, à freinage interne,  
en alliage résistant à chaud à base de nickel NI-P101HT  
(Waspaloy), argentés, pour sertissage 30°C -  
Classification: 1 210 MPa (à température ambiante) /  
730°C

Luft- und Raumfahrt - Einnietmuttern, selbstsichernd,  
aus hochwarmfester Nickelbasislegierung NI-P101HT  
(Waspaloy), versilbert, für 30°C Aufweitung - Klasse: 1  
210 MPa (bei Raumtemperatur) / 730°C

This European Standard was approved by CEN on 4 March 2016.

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



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## Contents

	Page
European foreword .....	3
1 Scope.....	4
2 Normative references.....	4
3 Required characteristics .....	4
4 Designation .....	6
5 Marking.....	6
6 Technical specification .....	6
Annex A (informative) Standard evolution form.....	7

## European foreword

This document (EN 3672:2016) 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 June 2017, and conflicting national standards shall be withdrawn at the latest by June 2017.

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.

This document supersedes EN 3672:2008.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard specifies the characteristics of self-locking shank nuts in NI-P101HT, silver plated, for use in 30° cone holes, for aerospace applications.

Classification: 1 210 MPa <sup>1)</sup>/730 °C <sup>2)</sup>.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

EN 2786, *Aerospace series — Electrolytic silver plating of fasteners*

EN 2959, *Aerospace series — Heat resisting alloy NI-PH1302 (NiCr20Co13Mo4Ti3Al) — Solution treated and cold worked — Bar for forged fasteners — 3 mm ≤ D ≤ 30 mm <sup>3)</sup>*

EN 3005, *Aerospace series — Nuts, self-locking, MJ threads, in heat resisting nickel base alloy NI-PH1302 (Waspaloy), silver plated or uncoated — Classification: 1 210 MPa (at ambient temperature)/730 °C — Technical specification*

EN 3220, *Aerospace series — Heat resisting nickel base alloy (Ni-P101HT) — Cold worked and softened — Bar and wire for continuous forging or extrusion for fasteners — 3 ≤ D ≤ 30 mm <sup>3)</sup>*

ISO 5855-2, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts*

## 3 Required characteristics

### 3.1 Configuration, dimensions, tolerances, masses

See Figure 1 and Table 1 and Table 2. Dimensions and tolerances are in millimetres. They apply after silver plating.

### 3.2 Material

EN 2959 or EN 3220.

### 3.3 Surface treatment

EN 2786 on thread, counterbore and chamfers.

Thickness:

- External surfaces: 5 μm to 15 μm;
- Thread ≥ MJ6: 5 μm min. on thread flanks;
- Thread MJ5: shall show complete coverage, without thickness requirement.

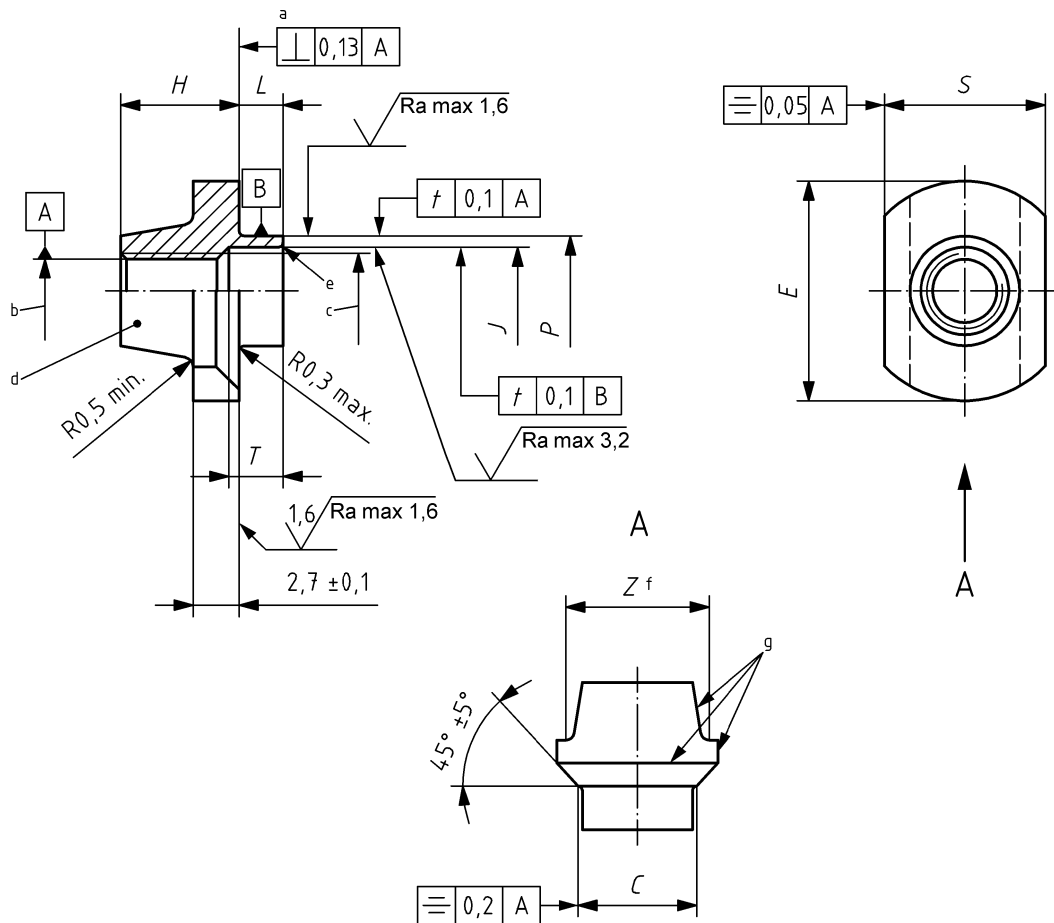
---

1) The strength class of the bolt concerned which can withstand the load at ambient temperature when tested at 100 % load without cracking or breaking of the nut.

2) Maximum test temperature of the parts.

3) 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](http://www.asd-stan.org))

$\sqrt{Ra \text{ max } 6,3}$   $\left( \sqrt{Ra \text{ max } 1,6} \quad \sqrt{Ra \text{ max } 3,2} \right)$  Values apply before silver plating. Thread surface will be as achieved by normal methods of manufacture.



Remove sharp edges 0,1 mm to 0,4 mm

Details of form not stated are left to the manufacturer's discretion

- a Not convex
- b Pitch diameter
- c Thread
- d Form-out-round in this area to achieve the self-locking requirement (tooling marks permissible)
- e Chamfer or radius max. 0,08
- f Limit of the blend radius
- g Marking in these areas but not in locking area

**Figure 1 — Shank nuts**

**Table 1 — Dimensions and masses, (not for new design)**

Thread <sup>a</sup>		<i>C</i>	$\varnothing E$	<i>H</i>	$\varnothing J$	<i>L</i>	$\varnothing P$	<i>S</i>	<i>T</i>	$\varnothing Z$	Mass 1 000 pieces kg
Code	Designation	± 0,1	± 0,25	h14	+ 0,1 0	+ 0,1 0	0 - 0,1	± 0,1	± 0,25	max.	≈
050	MJ5 × 0,8-4H6H	7	13	7	5,2	2,6	6,5	9,5	3,2	8,5	2,77
060	MJ6 × 1-4H5H	8	14	8	6,2	2,9	7,5	10,5	3,5	9,5	3,47
070	MJ7 × 1-4H5H	9	16	9	7,2	3,1	8,5	11,5	3,7	10,5	4,2
080	MJ8 × 1-4H5H	10	17	10	8,2	3,3	9,5	12,5	4	11,5	5,41

<sup>a</sup> In accordance with ISO 5855-2. In the self-locking zone, the tolerances apply before forming out-of-round.

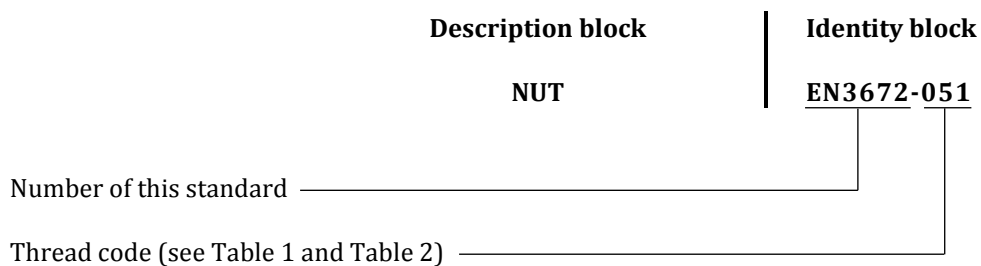
**Table 2 — Dimensions and masses**

Thread <sup>a</sup>		<i>C</i>	$\varnothing E$	<i>H</i>	$\varnothing J$	<i>L</i>		$\varnothing P$	<i>S</i>	<i>T</i>	$\varnothing Z$	Mass 1 000 pieces kg
Code	Designation	± 0,1	± 0,25	h14	+ 0,1 0	nom.	Tol.	0 + 0,3	± 0,1	± 0,25	max.	≈
051	MJ5 × 0,8-4H6H	7	13	7	5,2	1,8	± 0,1	6,5	9,5	2,4	8,5	2,78
061	MJ6 × 1-4H5H	8	14	8	6,2			7,5	10,5		9,5	3,45
071	MJ7 × 1-4H5H	9	16	9	7,2	2,8	± 0,15	8,5	11,5	3,4	10,5	4,28
081	MJ8 × 1-4H5H	10	17	10	8,2	3,2		9,5	12,5	3,9	11,5	5,56

<sup>a</sup> In accordance with ISO 5855-2. In the self-locking zone, the tolerances apply before forming out-of-round.

## 4 Designation

EXAMPLE



NOTE If necessary the originator code I9005 shall be placed between the description block and the identity block.

## 5 Marking

EN 2424, Style A, as indicated in Figure 1.

## 6 Technical specification

According to EN 3005.



**Annex A**  
(informative)

**Standard evolution form**

The main changes with respect to the previous edition are listed in Table A.1.

**Table A.1 — Main changes to previous edition**

<b>prEN/EN Number</b>	<b>Edition</b>	<b>Publication Date</b>	<b>Modification</b>	<b>Reason and validation</b>
prEN 3672	P1	02/1998	Table 1 is not valid for new design	
			New Table 2 for new design	





# British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

## About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

## Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at [bsigroup.com/standards](http://bsigroup.com/standards) or contacting our Customer Services team or Knowledge Centre.

## Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at [bsigroup.com/shop](http://bsigroup.com/shop), where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

## Copyright in BSI publications

All the content in BSI publications, including British Standards, is the property of and copyrighted by BSI or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use.

Save for the provisions below, you may not transfer, share or disseminate any portion of the standard to any other person. You may not adapt, distribute, commercially exploit, or publicly display the standard or any portion thereof in any manner whatsoever without BSI's prior written consent.

## Storing and using standards

Standards purchased in soft copy format:

- A British Standard purchased in soft copy format is licensed to a sole named user for personal or internal company use only.
- The standard may be stored on more than 1 device provided that it is accessible by the sole named user only and that only 1 copy is accessed at any one time.
- A single paper copy may be printed for personal or internal company use only.

Standards purchased in hard copy format:

- A British Standard purchased in hard copy format is for personal or internal company use only.
- It may not be further reproduced – in any format – to create an additional copy. This includes scanning of the document.

If you need more than 1 copy of the document, or if you wish to share the document on an internal network, you can save money by choosing a subscription product (see 'Subscriptions').

## Reproducing extracts

For permission to reproduce content from BSI publications contact the BSI Copyright & Licensing team.

## Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to [bsigroup.com/subscriptions](http://bsigroup.com/subscriptions).

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

**PLUS** is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit [bsigroup.com/shop](http://bsigroup.com/shop).

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email [subscriptions@bsigroup.com](mailto:subscriptions@bsigroup.com).

## Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

## Useful Contacts

### Customer Services

**Tel:** +44 345 086 9001

**Email (orders):** [orders@bsigroup.com](mailto:orders@bsigroup.com)

**Email (enquiries):** [cservices@bsigroup.com](mailto:cservices@bsigroup.com)

### Subscriptions

**Tel:** +44 345 086 9001

**Email:** [subscriptions@bsigroup.com](mailto:subscriptions@bsigroup.com)

### Knowledge Centre

**Tel:** +44 20 8996 7004

**Email:** [knowledgecentre@bsigroup.com](mailto:knowledgecentre@bsigroup.com)

### Copyright & Licensing

**Tel:** +44 20 8996 7070

**Email:** [copyright@bsigroup.com](mailto:copyright@bsigroup.com)

### BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK