



DPC: 20 / 30412757 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: + 44 (0)20 8996 9000

Fax: + 44 (0)20 8996 7400

www.bsigroup.com

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Responsible committee: ACE/12 Aerospace fasteners and fastening systems

Interested committees:

Title: Draft BS EN 4892 Aerospace series - External Mortorq

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Responsible Committee Secretary: Dr Beata Mroz-Orlikowska (BSI)

Direct tel: 020 8996 7773

E-mail: beata.mroz-orlikowska@bsigroup.com

Introduction

This draft standard is based on European discussions in which the UK has taken an active part. Your comments on this draft are welcome and will assist in the preparation of the consequent British Standard. Comment is particularly welcome on national, legislative or similar deviations that may be necessary.

Even if this draft standard is not approved by the UK, if it receives the necessary support in Europe, the UK will be obliged to publish the official English Language text unchanged as a British Standard and to withdraw any conflicting standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	(7)
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/ Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

**ASD STANDARD
NORME ASD
ASD NORM**

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**Rue Montoyer, 10/5 - B-1000 Brussels, Belgium - Tel +32 2 775 81 26 - Fax +32 2 775 81 31 -
www.asd-stan.org**

ICS:

Descriptors:

ENGLISH VERSION

Aerospace series — TBD — TBD



**Luft- und Raumfahrt — Haupt-
Element — Ergänzendes Element**

**Série aérospatiale — Élément
central — Élément complémentaire**

Edition approved for publication

Comments should be sent within six months
after the date of publication to
ASD-STAN

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Revision 1 Draft 8

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1 Introduction

Aerospace and Defence Standardisation (ASD-STAN) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent "Spiral Drive System for Threaded Fasteners" EP1025370B1.

ASD-STAN takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured ASD-STAN that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with ASD-STAN. Information may be obtained from:

The Phillips Screw Company

301 Edgewater Drive, Suite 320

Wakefield, Massachusetts, 01880

USA

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ASD-STAN shall not be held responsible for identifying any or all such patent rights.

2 Scope

This standard specifies the dimensions, tolerances, configuration and mass of an external spiral drive tension head bolt for use in Aerospace applications.

3 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.

NAS4008 Fasteners, corrosion resistant Nickel Alloy 718, external threaded 220KSI Ft_u, 125 KSI Fs_u, 900 °F

AS7475 Bolts, Cobalt-Chromium-Nickel Alloy, UNS R30159, Tensile Strength 260 ksi, Procurement Specification

AMS5662 Nickel alloy, corrosion and heat-resistance, solution heat treated.

AMS5962 Nickel alloy, corrosion and heat-resistant, solution treated and work strengthened.

AMS5842 Cobalt-nickel alloy, corrosion and heat resistant bars.

EN2516 Aerospace series - Passivation of corrosion resistant steels and decontamination of nickel base alloys)

EN6118 Aerospace series – Process specification – Aluminium base protection for fasteners.

EN4473 Aerospace series – Aluminium pigmented coating for fasteners – Technical Specification.

EN 2491 Aerospace series – Molybdenum disulphide dry lubricants – Coating methods

ISO3161 Aerospace -- UNJ threads -- General requirements and limit dimensions

ASME B46.1 Surface texture (surface roughness, waviness and lay).

EN2424 Aerospace series - Marking of aerospace products.

EN6117 Aerospace series – Specification for lubrication of fasteners with cetyl alcohol.

ISO2768-1 General tolerances – Tolerances for linear and angular dimensions without individual tolerance indications.

EN4852 Aerospace series – External Spiral Drive Heads for threaded fasteners – Geometrical definition and wrenching configuration.

4 Requirements

4.1 Configuration, dimensions, tolerances & mass

Configuration shall be in accordance with figure 1.

Dimensions shall be in accordance with figure 1, tables 3, 4, 5, 7 and 8.

Dimensions are defined after surface treatment and before lubricant application.

Break sharp edges after drilling hole into thread or bolt head, required by specific code indicated in table 2.

4.1.1 Concentricity

Diameter “A” and Diameter “D” shall be within the values of X (Total Indicator Reading – TIR).

Shank diameter “D” and Thread Diameter “TD” shall be within the values of Y (TIR).

4.1.2 Surface Texture

0,8µm on bolt shank, bearing surface of the bolt head, radius r1, thread flanks and thread root.

3,2µm on other surfaces.

4.2 Mechanical characteristics

The mechanical characteristic shall be in accordance with the table 6.

4.3 General Characteristics

Tolerances not specified, shall be in accordance with ISO2768-M.

Surface condition per ASME B46.1

Yellow identification paint TBD

4.4 Mass

The mass shall be in accordance with the tables 9 and 10.

4.5 Material and surface treatment

The material, surface treatment and lubrication shall be in accordance with table 1.

Table 1 : Material and surface treatment

Material	Surface treatment	Lubricant	T°C max.	Code	Bolt identification
Nickel Alloy (Inconel 718) as per AMS5962 or AMS5662 R = 1510 MPa min. Rc = 862 MPa min.	Aluminium coating as per specification EN4473 type II	Cetyl alcohol as per EN6117	235°C	L	None
	IVD as per EN6118	Cetyl alcohol as per EN6117	235°C	M	None
	Passivation as per AMS2700, method 1 type 8	Dry film lube use to 426°C without graphite as per AS1701 class 6	426°C	N	None
		Cetyl alcohol as per EN6117		P	None
Cobalt-Nickel Alloy (MP159) as per AMS5842	Passivation as per AMS2700, method 1 type 8	Dry film lube use to 426°C without graphite as per AS1701 class 6	426°C	E	Blue paint identification at thread end

4.6 Specific requirements

Specific requirements related to double locking and serial marking

Table 2 : Specific requirements

Hole in the thread area (detail B)	Yellow paint identification (detail B)	Hole in the bolt head (detail C)	Specific Code
No	No	No	-
No	No	Yes	H
Yes	No	No	D
Yes	No	Yes	HD
Yes	Yes	No	C
Yes	Yes	Yes	HC

4.7 Bolt geometry

Bolt geometry related to the diameter code. Head geometry per EN4852.

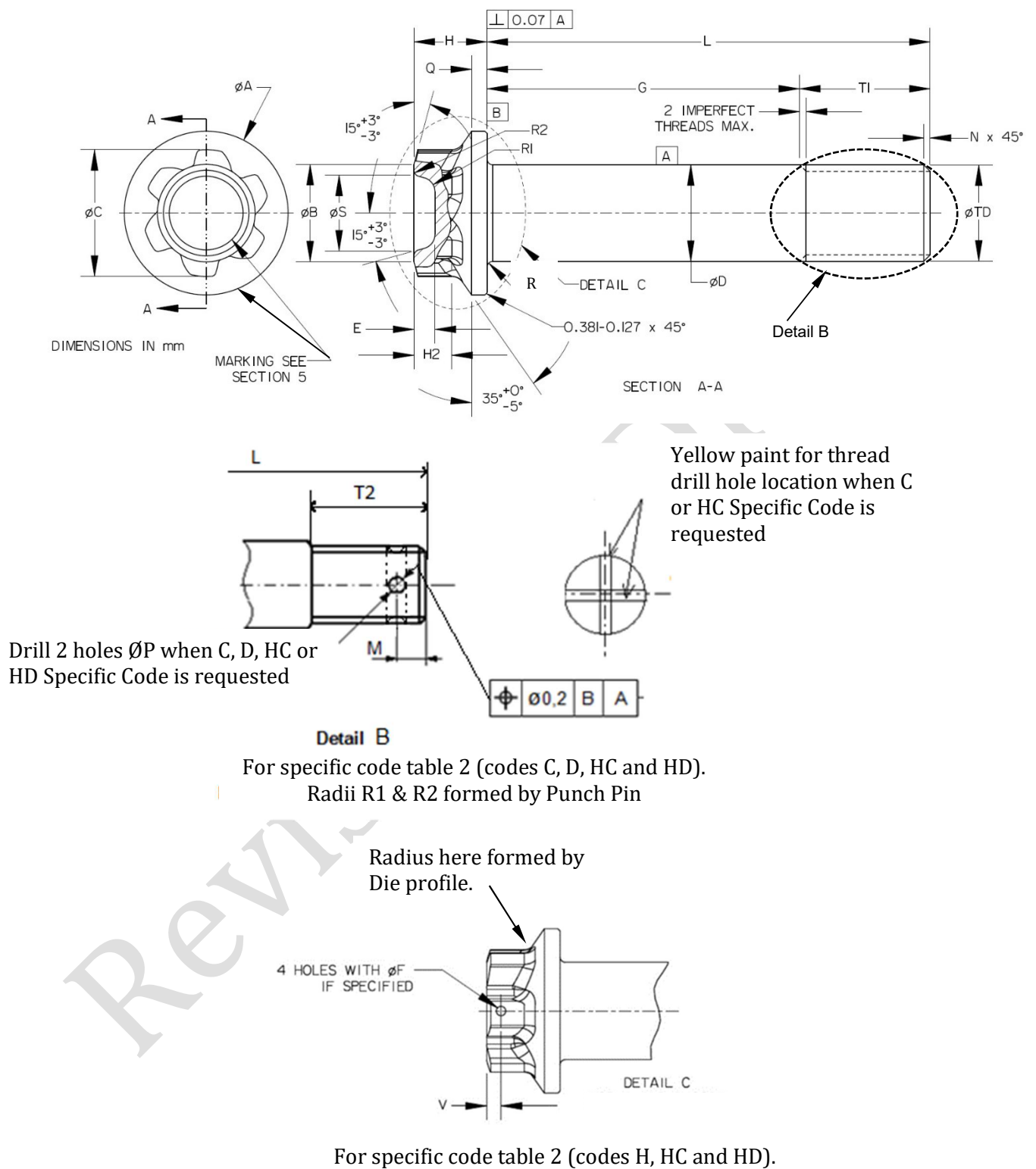


Figure 1: Bolt configuration