BRITISH STANDARD

BS EN 4074:2009

Aerospace series — Screws, pan head, six lobe recess, coarse tolerance normal shank, medium length thread, in titanium alloy, aluminium IVD coated — Classification: 1 100MPa (at ambient temperature) / 425 °C

ICS 49.030.20

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 4074:2009.

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.

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EUROPEAN STANDARD

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EN 4074

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ICS 49.030.20

English Version

Aerospace series - Screws, pan head, six lobe recess, coarse tolerance normal shank, medium length thread, in titanium alloy, aluminium IVD coated - Classification: 1 100 MPa (at ambient temperature) / 425 °C

Série aérospatiale - Vis à tête cylindrique, à empreinte six lobes, tige normale à tolérance large, filetage moyen, en alliage de titane, revêtues d'aluminium IVD - Classification: 490 MPa (à température ambiante) / 425 °C

Luft- und Raumfahrt - Flachkopfschrauben mit Sechs-Bogenzahn, mit mittlerer Gewindelänge, aus Titanlegierung, Aluminium IVD beschichtet - Klasse: 1 100 MPa (bei Raumtemperatur) / 425 °C

This European Standard was approved by CEN on 6 June 2009.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Contents

Page

Foreword

This document (EN 4074:2009) 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of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

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1 Scope

This standard specifies the characteristics of screws, pan head, six lobe recess, coarse tolerance normal shank, medium length thread, in titanium alloy, aluminium IVD coated.

Classification: 1 100 MPa [1] / 425 °C [2]

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

EN 3911, *Aerospace series — Six lobe recess — Geometrical definition.* [3]

EN 9100, *Aerospace series — Quality management systems — Requirements (based on ISO 9001:2000) and Quality systems — Model for quality assurance in design, development, production, installation and servicing (based on ISO 9001:1994).*

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts.*

ISO 3353-1, *Aerospace — Lead and runout threads — Part 1: Rolled external threads.*

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

ISO 7913, *Aerospace — Bolts and screws, metric — Tolerances of form and position.*

ISO 9152, *Aerospace — Bolts, with MJ threads, in titanium alloys, strength class 1 100 MPa — Procurement specification.*

TR 3775, *Aerospace series — Bolts and pins — Materials.* [4]

MIL-DTL-83488D, *Coating, aluminum, high purity.* [5]

NAS 1800-90, *Recess, six lobe drive — Internal — Dimensions for recess and gages.* [6]

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1) Minimum tensile strength of the material at ambient temperature.

2) Maximum temperature that the screw can withstand without continuous change in its original characteristics, after return to ambient temperature. The maximum temperature is determined by the surface treatment.

3) Published as ASD Prestandard at the date of publication of this standard.

4) Published as ASD Technical Report at the date of publication of this standard.

5) Published by: Department of Defense (DoD), the Pentagon, Washington,DC 20301, USA.

6) Published by: Aerospace Industries Association of America, Inc. (AIA), 1250 Eye Street, NW; Suite 1100, Washington, DC 20005, USA.

3 Required characteristics

3.1 Configuration — Dimensions — Masses

See Figure 1 and Table 1.

Dimensions and tolerances are expressed in millimetres and apply after surface treatment.

3.2 Tolerances of form and position

ISO 7913 and those specified in Figure 1 and Table 1.

3.3 Materials

TR 3775 (titanium alloy, classification 1 100 MPa).

3.4 Surface treatment

MIL-DTL-83488D, Type II, class 3, 4 µm to 12 µm.

After aluminium deposit:

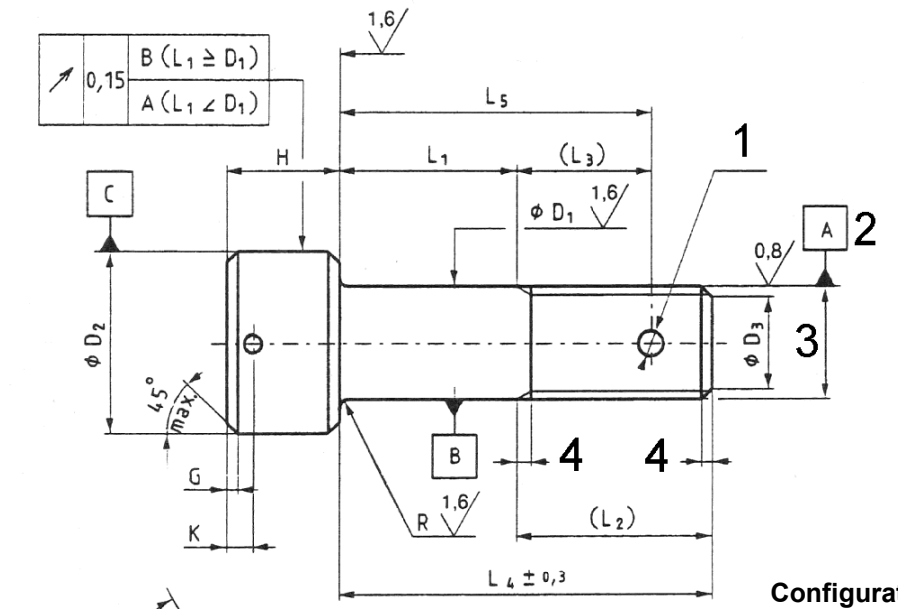
a) mechanical blasting, followed by a chromate conversion coating within 24 h max. 7);

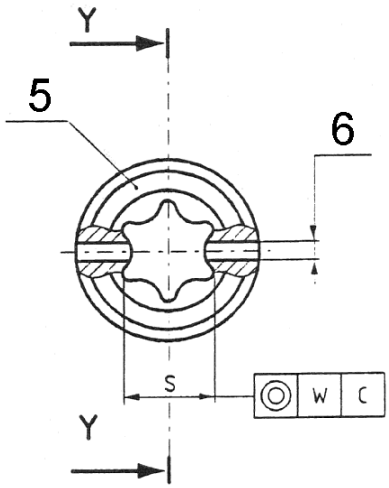
b) optional lubrication with cethylic alcohol (code E).

7) Products used shall be in conformity with national regulation into force.

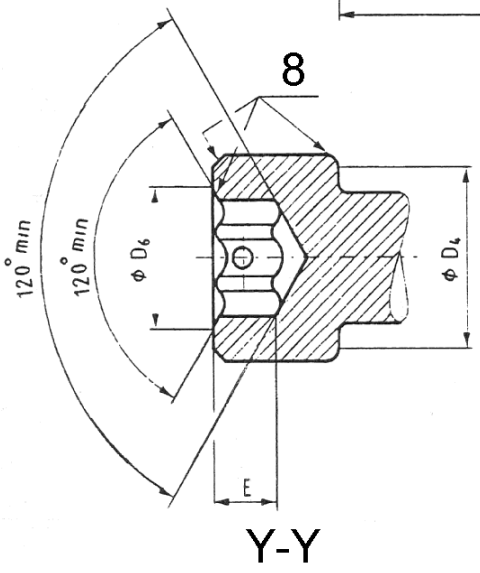
3,2 [0,8 1,6] Values in micrometres apply prior to surface treatment.

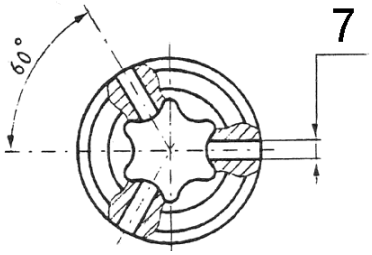
Break sharp edges 0,1 to 0,4.





Configuration for diameter codes 030 and 040





Configuration for diameter codes 050 to 200

Key

1 1 hole ∅ D_7 optional
2 Pitch diameter
3 Thread
4 Conforms to ISO 3353-1
5 Marking
6 Two holes ∅ D_5 optional
7 Three holes ∅ D_5 optional
8 Radius or chamfer

Figure 1

Table 1

Diameter code	Thread [a]	D_1 h12	D_2 h13	D_3 nom.	D_3 Tol.	D_4 min.	D_5 H13	D_6 max.	D_7 H13	E nom.	E Tol.	G	H nom.	H Tol.
030	MJ3×0,5 - 4h6h	3	5,5	2,3	0 − 0,5	5,07	1	3,4	—	1,5	0 − 0,2	0,3	3	h13
040	MJ4×0,7 - 4h6h	4	7	3		6,53		3,9	1,1	2		0,4	4	
050	MJ5×0,8 - 4h6h	5	8,5	3,4	± 0,5	8,03		5,1	1,5	2,5		0,5	5	
060	MJ6×1 - 4h6h	6	10	4,2		9,38	1,4	6,3		3	0 − 0,3	0,6	6	h14
080	MJ8×1 - 4h6h	8	13	6,2		12,33		7,5	1,9	4		0,8	8	
100	MJ10×1,25 - 4h6h	10	16	7,9		15,33	1,6	10,2	2,4	5	0 − 0,5	1	10	
120	MJ12×1,25 - 4h6h	12	18	9,8		17,23		13,8		6		1,2	12	

Diameter code	K ± 0,1	L_1 ± 0,2 [b, c] Length code	L_1 ± 0,2 [b, c] nom.	L_2	L_3	R max.	R min.	W	Recess EN 3911 code	Recess NAS 1800 number	Mass [d] [e]	Mass [d] [f]
030	0,9	002 to 030	2 to 30	7,5	—	0,4	0,2	—	—	T10	0,59	0,031
040	1,4	002 to 040	2 to 40	10	6			0,22	25	—	1,28	0,056
050	1,6	003 to 050	3 to 50	12	7,5	0,5	0,3		27	—	2,58	0,087
060	2	003 to 060	3 to 60	14	8,5	0,7	0,5		—	T30	3,94	0,126
080	2,4	004 to 080	4 to 80	16,5	10,5			0,27	45	—	8,75	0,224
100		005 to 100	5 to 100	20,5	13	0,8	0,6		—	T50	16,61	0,349
120		006 to 120	6 to 120	22,5	14,5	0,9			—	T55	24,43	0,503

[a] In accordance with ISO 5855-2.

[b] Increments:
- 1 for $L_1 \leq 30$;
- 2 for $30 < L_1 \leq 100$;
- 4 for $L_1 > 100$.

[c] If greater lengths are required, they shall be chosen using the above increments. The length code corresponds to the length L_1, completed by one or two zeros to the left, where necessary, to obtain a three digit code.

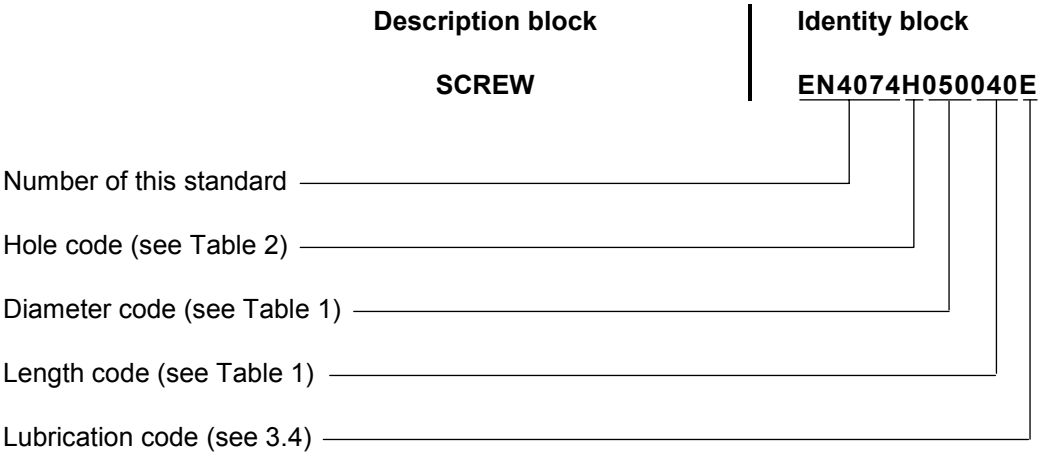
[d] Approximate values (kg/1 000 pieces), calculated on the basis of 4,45 kg/dm^3, given for information purposes only. They apply to screws without holes.

[e] Value for head and first L_4.

[f] Increase for each additional millimetre of L_4.

4 Designation

EXAMPLE



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

Table 2

Holes	Code
Lockwire	H
Split pin	D
Lockwire and split pin	C
No hole	— (hyphen)

5 Marking

See Table 3 and Figure 1.

Table 3

Diameter code	EN 2424 Style
030 and 040	N
050 to 120	B

6 Technical specification

ISO 9152, except for clauses:

a) Approval of manufacturers: see EN 9100;

b) Qualification of bolts: see EN 9133.

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