BS EN 4073:2016

BSI Standards Publication

Aerospace series — Screws, pan head, hexalobular recess, coarse tolerance shank, medium length thread, in alloy steel, cadmium plated — Classification: 1 100 MPa (at ambient temperature) / 235 °C

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National foreword

This British Standard is the UK implementation of EN 4073:2016. It supersedes BS EN 4073:2009 which is withdrawn.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.

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Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4073

March 2016

ICS 49.030.20

Supersedes EN 4073:2009

English Version

Aerospace series - Screws, pan head, hexalobular recess, coarse tolerance shank, medium length thread, in alloy steel, cadmium plated - Classification: 1 100 MPa (at ambient temperature) / 235 °C

Série aérospatiale - Vis à tête cylindrique, à empreinte six lobes, tige à tolérance large, filetage moyen, en acier allié, cadmiées - Classification: 1 100 MPa (à température ambiente) / 235 °C

Luft- und Raumfahrt - Flachkopfschrauben, mit Innensechsrund, mit mittlerer Gewindelänge, aus legiertem Stahl, verkadmet - Klasse: 1 100 MPa (bei Raumtemperatur) / 235 °C

This European Standard was approved by CEN on 22 August 2015.

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.

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

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

Ref. No. EN 4073:2016 E

Contents

European foreword

This document (EN 4073:2016) 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 European 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 September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

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This document supersedes EN 4073:2009.

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1 Scope

This European Standard specifies the characteristics of screws, pan head, six lobe recess, coarse tolerance shank, medium length thread, in alloy steel, cadmium plated.

Classification: 1 100 MPa [1] / 235 °C [2].

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 2133, *Aerospace series — Cadmium plating of steels with specified tensile strength ≤ 1450 MPa, copper, copper alloys and nickel alloys*

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

EN 3911, *Aerospace series — Six lobe recess — Geometrical definition*

EN 9100, *Quality Management Systems — Requirements for Aviation, Space and Defense Organizations*

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 7689, *Aerospace — Bolts, with MJ threads, made of alloy steel, strength class 1 100 MPa — Procurement specification*

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

TR 3775, *Aerospace series — Bolts and pins — Materials* [3]

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-STAN Technical Report at the date of publication of this European Standard (http://www.asd-stan.org/).

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

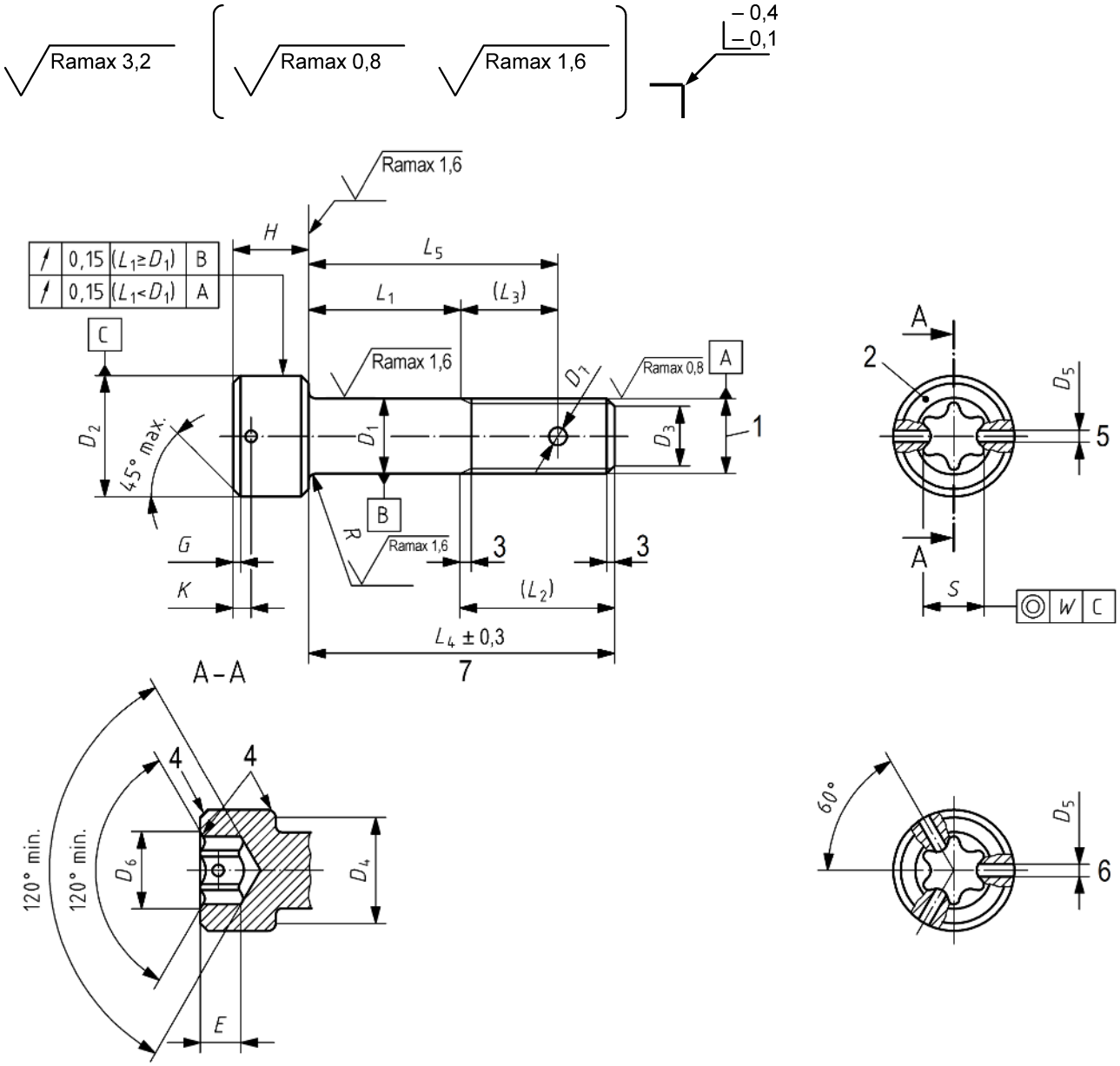
TR 3775: alloy steel, classification 1 100 MPa

3.4 Surface treatment

EN 2133, thickness 8 µm to 14 µm, on all surfaces which can be contacted by a 20 mm diameter ball. On all other surfaces, a continuous deposit shall be present, but no value is specified.

Black colour option: code B.

Dimensions in millimetres



Key

1 Thread
2 Marking
3 Conforms to ISO 3353-1
4 Radius or chamfer
5 Two holes optional (see Table 2) for diameter codes 030 and 040
6 Three holes optional (see Table 2) for diameter codes 050 to 120
7 $L_4 = L_1 + (L_2)$

Figure 1

Table 1

Diameter code	**Thread** [a]	D_1	D_2	D_3		D_4	D_5	D_6	D_7	E		G
		h12	h13	nom.	Tol.	min.	H13	max.	H13	nom.	Tol.	
030	MJ3x0,5 - 4h6h	3	5,5	2,3	0 − 0,5	5,07	1,0	3,4	—	1,5	+ 0,2 0	0,3
040	MJ4x0,7 - 4h6h	4	7,0	3,0		6,53		5,2	1,1	2,0		0,4
050	MJ5x0,8 - 4h6h	5	8,5	3,4	± 0,5	8,03		5,8	1,5	2,5		0,5
060	MJ6x1 - 4h6h	6	10,0	4,2		9,38	1,4	6,3		3,0	+ 0,3 0	0,6
080	MJ8x1 - 4h6h	8	13,0	6,2		12,33		8,9	1,9	4,0		0,8
100	MJ10x1,25 - 4h6h	10	16,0	7,9		15,33	1,6	10,2	2,4	5,0	+ 0,5 0	1,0
120	MJ12x1,25 - 4h6h	12	18,0	9,8		17,23		13,8		6,0		1,2

Diameter code	H		K	$L_1 \pm 0{,}2$ [b,c]		L_2	L_3	R		W	**Recess**	**Mass** [d]	
	nom	Tol.	± 0,1	Length code	nom.			max.	min.		EN 3911 code	e	f
030	3	h13	0,9	002 to 030	2 to 30	7,5	—	0,4	0,2	—	10	1,04	0,055
040	4		1,4	002 to 040	2 to 40	10,0	6,0			0,22	25	2,26	0,100
050	5		1,6	003 to 050	3 to 50	12,0	7,5	0,5	0,3		27	4,55	0,153
060	6	h14	2,0	003 to 060	3 to 60	14,0	8,5	0,7	0,5		30	6,95	0,222
080	8		2,4	004 to 080	4 to 80	16,5	10,5			0,22	45	15,44	0,395
100	10			005 to 100	5 to100	20,5	13,0	0,8	0,6		50	29,30	0,616
120	12			006 to 120	6 to120	22,5	14,5	0,9			55	43,10	0,887

[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.

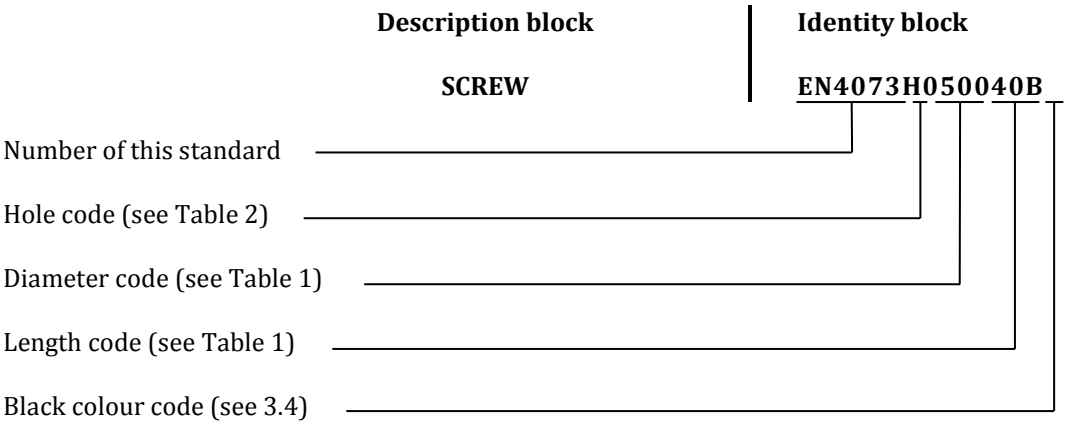
[d] Approximate values (kg/1 000 pieces), calculated on the basis of 7,85 kg/dm^3, given for information purposes only. They apply to screws without holes.

[e] Value for head and first L_4.

[f] Increase for each additional millimetre of L_4.

4 Designation

EXAMPLE



NOTE If necessary, the code I9005 shall 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

6.1 General

ISO 7689, with the following modifications.

6.2 Approval of manufacturers

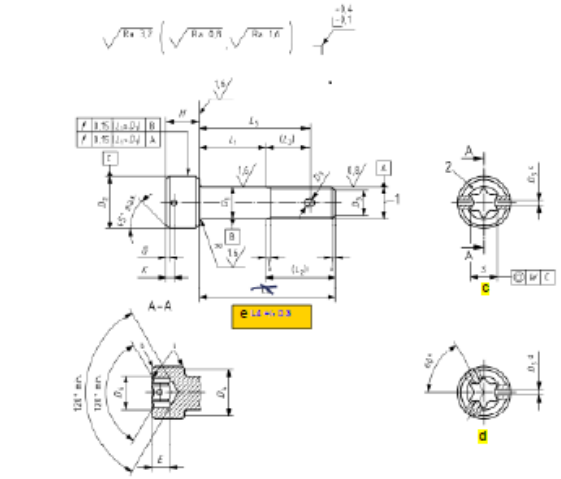
EN 9100.

6.3 Qualification of bolts

EN 9133.

Annex A
(normative)

Standard evolution form

<table>
<tr><th>MODIFICATION</th><th>REASON AND VALIDATION</th></tr>
<tr><td>
<table>
<tr><th>Rep Ø</th><th>D6 actuel</th><th>New D6</th></tr>
<tr><td>40</td><td>3,9</td><td>5,2</td></tr>
<tr><td>50</td><td>5,1</td><td>5,8</td></tr>
<tr><td>80</td><td>7,5</td><td>8,9</td></tr>
</table>
</td><td>Current D6 dimensions for diameter codes 40, 50 and 80 are not achievable.</td></tr>
<tr><td>Addition in normative references:
EN 3911, Aerospace series — Six lobe recess — Geometrical definition</td><td>There was no standard for six lobe definition.</td></tr>
<tr><td> 

Key:
1 Thread
2 Marking
a Conforms to ISO 3353-1
b Radius or chamfer
c Two holes optional for diameter code 030 and 040
d Three holes optional for diameter code 050 to 120
e L4= L1+(L2)</td><td>– L_4 is not defined and has no tolerance values.

– Keys 5 and 6 are none written on the drawing and linked with diameter range.</td></tr>
<tr><td>– Roughness symbol inside and above the drawing
Add to all symbols: max.

e.g. Ra max. 3,2
Ra max. 0,8</td><td>– Modify symbols according to ISO 1302.</td></tr>
<tr><td>
<table>
<tr><th colspan="2">Recess</th></tr>
<tr><th>EN 3911 code</th><th>~~NAS 1800 number~~</th></tr>
<tr><td>10</td><td>~~T10~~</td></tr>
<tr><td>25</td><td>~~—~~</td></tr>
<tr><td>27</td><td>~~—~~</td></tr>
<tr><td>30</td><td>~~T30~~</td></tr>
<tr><td>45</td><td>~~—~~</td></tr>
<tr><td>50</td><td>~~T50~~</td></tr>
<tr><td>55</td><td>~~T55~~</td></tr>
</table>
</td><td>Replace NAS code by EN code for EU applications</td></tr>
</table>

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