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SIST EN 4074:2009

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 4074**

July 2009

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 Sechsbogenzahn, 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.

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 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 Management Centre has the same status as the official versions.

[SIST EN 4074:2009](https://standards.iteh.ai/catalog/standards/sist/366f154c-92a9-4418-b060-4c1e1d118c1a/en-4074:2009)

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

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

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## 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.

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.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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**EN 4074:2009 (E)****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 <sup>1)</sup> / 425 °C <sup>2)</sup>

**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.* <sup>3)</sup>

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.* <sup>4)</sup>

MIL-DTL-83488D, *Coating, aluminum, high purity.* <sup>5)</sup>

NAS 1800-90, *Recess, six lobe drive — Internal — Dimensions for recess and gages.* <sup>6)</sup>

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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);

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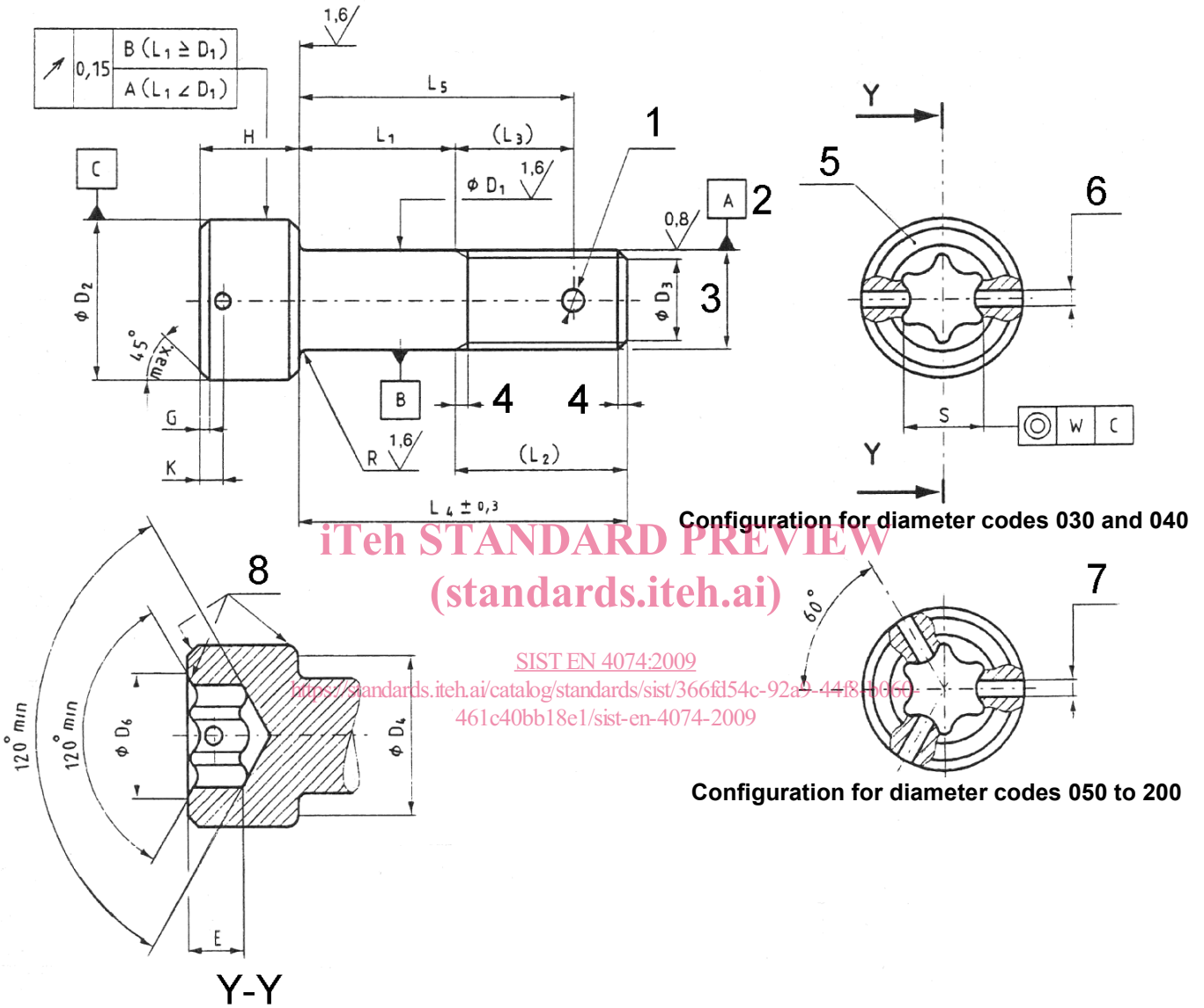
7) Products used shall be in conformity with national regulation into force.

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3,2 / [ 0,8 / 1,6 ]

Values in micrometres apply prior to surface treatment.

Break sharp edges 0,1 to 0,4.



Key

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

Figure 1



Table 1

Diameter code	Thread <sup>a</sup>	$D_1$	$D_2$	$D_3$		$D_4$	$D_5$	$D_6$	$D_7$	$E$		$G$	$H$	
		h12	h13	nom.	Tol.	min.	H13	max.	H13	nom.	Tol.		nom.	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	5	0 -0,5	1	10		
120	MJ12×1,25 - 4h6h	12	18	9,8	17,23	13,8		2,4	6	1,2	12			

Diameter code	$K$ ±0,1	$L_1 ± 0,2$ <sup>b, c</sup>		$L_2$	$L_3$	$R$		$W$	Recess		Mass <sup>d</sup>	
		Length code	nom.			max.	min.		EN 3911 code	NAS 1800 number	e	f
030	0,9	002 to 030	2 to 30	7,5	—	0,4	0,2	0,22	—	T10	0,59	0,031
040	1,4	002 to 040	2 to 40	10	6				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	0,27	—	T30	3,94	0,126
080		004 to 080	4 to 80	16,5	10,5				45	—	8,75	0,224
100	2,4	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		

<sup>a</sup> In accordance with ISO 5855-2 [standards.iteh.ai/catalog/standards/sist/366fd54c-92a9-44f8-b060-461c40bb18e1/sist-en-4074-2009](http://standards.iteh.ai/catalog/standards/sist/366fd54c-92a9-44f8-b060-461c40bb18e1/sist-en-4074-2009)

<sup>b</sup> Increments:  
- 1 for  $L_1 ≤ 30$ ;  
- 2 for  $30 < L_1 ≤ 100$ ;  
- 4 for  $L_1 > 100$ .

<sup>c</sup> 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.

<sup>d</sup> Approximate values (kg/1 000 pieces), calculated on the basis of  $4,45 \text{ kg/dm}^3$ , given for information purposes only. They apply to screws without holes.

<sup>e</sup> Value for head and first  $L_4$ .

<sup>f</sup> Increase for each additional millimetre of  $L_4$ .